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EDITED BY

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HE PRAYETH BEST WHO LOVETH BEST
ALL THINGS BOTH GREAT AND SMALL;
FOR THE DEAR GOD WHO LOVETH US,
HE MADE AND LOVETH ALL.

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INDEX.*

(*The names of books reviewed are printed in italics.*)

Address, President's, at Annual Meeting, 121.
Agricultural Botany, by Prof. J. Percival, 153.
Albinism in Birds, 36.
Albinism in Flowers, 218, 220.
Albino Swallow, 216.
American Society for Prevention of Cruelty to Animals, Report of, 72.
Animal Forms, &c., by Drs. David S. Jordan and Harold Heath, 197.
Animals, Communication between, 32.
Annual Meeting, Our, 41, 59, 78, 99, 101, 121.
Answers to Correspondents, 60, 80, 100, 120, 140, 160, 180, 200, 220, 232.
Anthony's Photographic Bulletin, The International Annual of, 30.
Ants, 157, 218.
Appeal, A Pathetic, 22.
Arbor-day, 41, 61, 101.
Astronomy with an Opera Glass, by Garrett P. Serviss, 153.
Aucuba, Fructification of the, 119.
Australia, 94.
Australia, Through Central, by the Right Rev. Gilbert White, Bishop of Carpentaria, 65.
Avalanches, 31.

Barbary Dove, Notes on the, &c., by G. T. Rope, 174.
Barrow, An Ancient British, 163.
Bath Branch, 40, 60, 219, 232.
Bat, The Great, or Noctule, 57.
Beagles and Betting at Eton College, 43.
Beautiful Birds, by Edmund Selous, 28.
Beddard, F. E., F.R.S., *Cambridge Natural History, vol. v., Mammalia*, 151.
Bees, 17.
Bees, 77, 118.
Bees in Winter, 59.
Bees, Wasps and, 18, 57.
Benson, The Rev. Charles William, *Our Irish Song Birds*, by, 56.
Betting and Beagles in Eton College, 43.
Biology, Experimental and Deductive, by the Editor, 107.
Bird, A Remarkable, 156.
Bird and Tree Day, 61, 101.
Bird, Heron Eating, 35.
Bird Hunting on the White Nile, by Henry F. Witherby, 70.
Bird Poisoner's Bag, 98.
Bird Protection in India, 183.
Bird Sanctuary at Hampstead, 95, 228.
Birds, Albinism in, 36
Birds and Berries, 75, 95, 116, 177.
Birds and Insects this Spring, 157.
Birds and Man, by W. H. Hudson, F.Z.S., 27.
Birds, Do, Assist One Another in Making Nests? 155.
Birds Fly, How High, 35.
Birds, Hampstead, 75.
Birds, Homes for, 217.
Birds in Winter, 44.
Birds' Nests; an Introduction to the Science of Caliology, by Charles Dixon, 70.
Birds, Notes on London, by A. Holte Macpherson, 68.
Birds' Protection, 142.
Birds Protection Act, Wild, 43.
Birds, Royal Protection for, 44.
Birds, Surgical Skill in, 116.
Birds, The Song of, 17, 34.
Birds, Wholesale Poisoning of, 74.
Black Tern in Cornwall, 35.
Black Woodpecker, 116, 214, 229.
Blackbird, A Black and White, 17.
Blackbird, A White, 36.
Blackbird Tapping at a Window, 58.
Blackbird's Eggs, Strange, 36.
Blackbird's Hygienic Instinct, A, 156.
Blackcaps Wintering in England, 76.
Blaisdell, Albert F., D.D., *Life and Health: a Text-book of Physiology*, 197.
Board of Agriculture Leaflets, Nos. 71-73, 94.
Book of Sonnets, A, by John Bernard O'Hara, 213.
Boulger, G. S., F.L.S., F.G.S., Burnham Beeches and the Recent Thinnings, by, 62; Experimental and Deductive Biology, by, 107; Science and Poetry of Trees, 195; The Preservation of our Indigenous Flora, by, 184; *Wood*, by, 226.
Brandelhow Estate, Opening of the (Derwentwater), 20.
Brigham, Prof. A. P., *A Text-book of Geology*, by, 71.
British Birds, A Glossary of Popular Names, by Charles Louis Hett, 197.
British Butterflies, A Handbook of, &c., by J. R. Charnley, F.E.S., 197.
Brittany, Notes from, 31.
Bromley (Quernmore) Junior Branch, 70
Bubbles from an Ivy Stem, 39, 78.
Buntings, Snow, 98, 229,
Burnham Beeches, and the Recent Thinnings by G. S. Boulger, F.L.S., F.G.S., 62, 41, 62, 103.
Bustard, Little, in Sussex, 35.

* We are again indebted to Mrs. Percy Myles for the Index to our year's volume.

Bustard, The Great, and the Ruff, 34.
Bustard, The Great, by Dr. A. J. H. Crespi, 10.
Butterflies and Moths of Europe, by W. F. Kirby, F.E.S., 153, 198, 214.
Butterflies in Battersea Park, 106.
Butterfly, A Mysterious, 217.
Butterfly, Hibernating, 77.
Butterfly, Injured, 38.
Buzzard, Honey, Nesting in Durham, 35.

Cambridge Natural History, Vol. v., Mammalia, by F. E. Beddard, F.R.S., 151.
Cameos from Nature, by Mrs. J. T. Gumersall, 113.
Canterbury Congress of South Eastern Union of Scientific Societies, 183.
Caterpillar in Stems of Water Plants, 218.
Cecil, Hon. Mrs. Evelyn, *Children's Gardens*, 226.
Central Australia, Through, by the Right Rev. Gilbert White, Bishop of Carpentaria, 65.
Chapman, Frederick, A.L.S., F.R.M.S., *The Foraminifera*, 71.
Charnley, J. R., F.E.S., *A Handbook of British Butterflies*, by, 197.
Cheddar Cliffs, 182.
Chiff-Chaff, 157.
Children's Gardens, by Hon. Mrs. Evelyn Cecil, 226.
Clapton (Lower Lea Valley) Branch, 40, 100.
Clothes Moth, The, 19, 38.
Cobbe, Miss Frances Power, and her Persecutors, 205.
Collie, A Retrieving, 33.
Colour Photography for Amateurs, 203.
Commons and Footpaths Preservation Society, 141.
Commons and Footpaths Preservation Society, Report of the Kent and Surrey Committee of the, 57.
Communication among Dogs, 15.
Communication between Animals, 32.
Convolvulus Hawk-Moth, The, 19.
Conwentz, Prof., *Forstbotanisches Merkbuch*, edited by, 27.
Coulter, Prof. J. M., *Plant Relations and Plant Structures*, 71.
Council Meetings, 10, 39, 59, 78, 99, 119, 139, 159, 179, 198, 219, 232.
Country, The, 72, 155.
Country Walk, A, 164.
Course of Invertebrate Zoology, A, by Prof. H. S. Pratt, 114.
Crespi, Dr. A. J. H., The Great Bustard, by, 10.
Crocus, Variations in Stamens of, 118.
Croham Hurst, 1.
Crows and Sparrows, 98, 156.
Crows Attacking a Dog, 217.
Croydon and Norwood Branch, 20, 79, 119.
Cruelty of Sparrows, 177.
Cuckoo, 138, 177, 228.
Cuckoo and Pipits, 37.
Cuckoo, Late, 215.
Cuckoo, Late Hatched, and its Early Life. 215.
Cuckoo Lore, 115.
Cuckoo, The Early Life of the Young, by Percival Westell, M.B.O.U., 84, 115.
Cuckoo, The Young, 115.
Cuckoo's Egg in Unfinished Nest. 139, 155.
Cuckoo's Note, The, 116, 228.
Cumbrian Notes, 32.
Curlew, 116.

Daubeny, Capt. G. A., The Holly, by, 225; *The Protection of Birds*, by, 92.
Daubeny, The Rev. Edmund T., Enemies of Trout, by, 23.
Death of a Contributor, 2.
Derwentwater, 103, 203.
Devil's Coach Horse. Why does he turn up his tail? 218, 229.
Devon Association, Success of the United, 42.
Devonia. United Devon Association Directory, &c., 72.
Dioptric and Ophthalmometric Review, The, 214.
Dixon, Charles, *Birds' Nests; an Introduction to the Science of Caliology*, 70; *The Ross Bird-Stalker*, by, 155.
Dog, Crows Attacking a, 217.
Dogs, Communication among, 15.
Donations and Subscriptions, 19, 39, 60, 78, 99, 119, 139, 159, 179, 198, 219, 232.
Dove, Notes on the Barbary, Collared Turtle or Laughing Dove, by G. T. Rope, 174.
Dover College (Junior) Branch, 79.
Double Peach Fruiting, 38.
Ducks, Early Nesting of Wild, 117.
Ducks, Sboveller, 97.
Dulwich, The Trees of, &c., by W. J. Teesdale, 92.

Ealing (Brent Valley) Branch, 40, 60, 219.
Ealing Natural Science, &c., Report, 214.
Early Life of the Young Cuckoo, by W. Percival Westall, M.B.O.U., 84, 115, 196.
Early Nesting of Wild Duck, 117.
Earth and Sky, No. 2, by J. H. Stickney, 214.
Earwigs, 230.
East Kent Scientific Natural History Society Report, &c., 193.
Editor, by the, Burnham Beeches and the Recent Thinning, &c., 62; Experimental and Deductive Biology, 107; Preservation of our Indigenous Flora, &c., 184; Science and Poetry of Trees, 195; This is the Forest Primeval, 12.
Egg, Cuckoo's, in Unfinished Nest, 139, 155.
Eggs, Hedgehogs and, 32, 74, 114.
Eggs, Strange Blackbird's, 36.
Eggs, The Sale of, 1.
Egg-sucking Thrush, An, 36.
Election of Officers at Annual Meeting, 130.
El Ombú, by W. H. Hudson, 92.
Emerton, James H., *The Common Spiders of the United States*, by, 197.
Enemies of Trout, by the Rev. Edmund T. Daubeny, 23.
English, Douglas, *Photography for Naturalists*, by, 29.
Enock, F., Lantern Lecture on Insect Marvels of a Town Garden, 132.
Epping Forest, A New, 135.
Epsom College Natural History Society Report, 93.

Essex Field Club, the Coming of Age of the, &c., 93.
Eton College, Betting and Beagles at, 43.
European Fungus Flora : Agaricaceæ, by George Massee, F.L.S., 150.
Exhibition, Nature Study, 41, 161.
Experimental and Deductive Biology, by the Editor, 107.

Fabre, J. H., *Insect Life, Souvenirs of a Naturalist*, by, 56.
Face of Nature, The, &c., by the Rev. C. J. Ovenden, D.D., 153.
Fasting Powers of Animals, 226.
Felsted School Scientific Society, Report of the, 93.
Field Club Rambles, 60, 80, 100, 119, 139, 159, 179, 199, 220.
Fieldfare, Redwing and, 76.
Field Path Rambles, Series XIII. and XVIII., by Walker Miles, 198.
Fishes, Our Country's, by W. J. Gordon, 213.
Fishes, Spinning, by H. Waller Kew, F.Z.S., 2.
Flies or Gnats ? 38.
Flora, European Fungus : Agaricaceæ, by George Massee, F.L.S., 196.
Flora of Hampstead, Some Notes on the, by James E. Whiting, 31.
Flora, the Preservation of our Indigenous, &c., by G. S. Boulger, F.L.S., 184.
Flower Painting, A Gallery of, 82, 104.
Flowers, Albinism in, 218, 230.
Fly, Remarks on the Common, by Lieut.-Col. A. G. Yaldwyn, 169.
Footpaths and Commons Preservation Society, 141.
Foraminifera, The, &c., by Frederick Chapman, A.L.S., F.R.M.S., 71.
Forest, Primeval, This is the, by the Editor, 12.
Forstbotanisches Merkbuch, edited by Prof. Conwentz, 27.
Foster Father, A, 215
Fowler, W. Warde, *More Tales About Birds*, by, 113.
Frog, Metamorpbosis of the, 16.
From a Middlesex Garden, &c., by Alfred H. Hyatt, 57.
From the German, 224.
Fructification of the Aucuba, 119.
Fungus Flora, European : Agaricaceæ, by George Massee, F.L.S., 196.

Garden of Wild Flowers, A, 22.
Geology, A Text-book of, by Prof. A. T. Brigbam, 71.
Gilbert White, A Portrait of, by Dr. Bowdler Sharpe, 132.
Gilbert White, A Portrait of, by Rashleigh Holt White, 142.
Gilbert White's Sermons : A Query, 44
Glossary of Popular Names of British Birds, by Charles Louis Hett, 197.
Gnats, Flies or, 38.
Goldcrest, The, 156.
Goldfisb, Kingfisher and, 36.
Gordon, W. J., *Our Country's Fishes*, by 213.
Great Bustard, The, by Dr. A. J. H. Crespi, 10.
Great Bustard and the Ruff, The, 34.
Greening, E. B., *One and All Gardening*, by 114.
Grove, The, Stanmore, Natural History at, by Wilfred Mark Webb, 147.
Gulls, Tame, 75.
Gumersall, Mrs. J. T., *Cameos from Nature*, by, 113.

Haileybury Natural Science Society, The Report of the, 72.
Half-hours with Nature in a Middlesex Lane, by Wesley T. Page, F.Z.S., 84.
Hampstead Birds, 75.
Hampstead, Bird Sanctuary at, 95, 223.
Hampstead, Flora of, 230.
Hampstead Scientific Society, The Report of the, 72.
Hampstead, Some Notes on the Flora of, by James E. Whiting, 31.
Harbouring Little Birds, 97.
Hasluck, Paul N., *Optical Lantern and Accessories*, edited by, 14 ; *Photographic Camera and Accesories*, edited by, 14.
Hawk-moth, Convolvulus, 19.
Hawk-moth, Humming-bird, 19.
Heath, Drs. Harold, and David S. Jordan, *Animal Forms, &c.*, by, 197.
Hedgehogs, 15, 74, 114, 136.
Hedgehogs and Eggs, 32.
Height of Trees in England, 113, 157.
Helix aspersa, 113, 157.
Helix pomatia, 183.
Heron Eating Bird, 35, 58.
Hett, Charles Louis, *A Glossary of Popular Names of British Birds*, by, 197.
Hibernating Butterflies, 77.
Hoar Frost on Trees and Hedges, 15.
Hodge, Prof. C. F., Ph.D., *Nature Study and Life*, by, 151.
Holly, The, by Captain G. A. Daubeny, 223.
Homes for Birds, 217.
Honey Buzzard Nesting in Durham, 35.
How High Birds Fly, 35, 53, 74.
Hudson, W. H., F.Z.S., *Birds and Men*, by, 27 ; *El Ombú*, by, 92.
Humane Review, The, 30, 214.
Humane Year-book and Directory of Animal Protection Societies, The, 71.
Humanitarian League Conversazione, 82.
Humming-Bird Hawk-moth, The, 19.
Hyatt, Alfred H., *From a Middlesex Garden, &c.*, by, 57.

Illustrations, Our, 44.
Imaginative Native History, by the Rev. F. M. Millard, 8.
Injured Butterfly, 38.
Insect Life: Souvenirs of a Naturalist, by J. H. Faber, 56
Insects and Birds this Spring, 157.
International Annual of Anthony's Photographic Bulletin, edited by W. J. Scandlin, 30.
Irish Song Birds, Our, by the Rev. Charles William Benson, 56.
Ivy Stem, Bubbles from an, 39, 73.

Jackdaw, 17.
Jefferies, Memorial to Richard, 81, 222.
Johnson, Walter, Spring in Wessex, by, 110.
Jones, Parnell, Our Favourite Spaniel, by, 207.

Jordan, Drs. David S., and Harold Heath, *Animal Forms, &c.*, by, 197.
Journal of the Kew Guild, 31.

Kearton, R., *Strange Adventures in Dicky Bird Land*, by, 14.
Kew Guild, The Journal of the, 31.
Kew, H. Wallis, F.Z.S., Spinning Fishes, 2.
Kingfisher, The, 17.
Kingfisher and Goldfish, 36.
Kirby, W. F., F.L.S., *Butterflies and Moths of Europe*, by, 153, 198, 214.
Kitten, 136.
"Knaurs"? in Trees, 98.

Lambs, Autumn, in North Wales, 214.
Laughing (Collared Turtle) Dove, Notes on the Barbary Dove, &c., by G. T. Rope, 174.
Leaflets, 80.
Lens, The Tele-photo, 204.
Librarian, New Honorary, 219.
Library, Books Presented to the, 159, 179.
Life and Health, A Text-Book of Physiology, &c., by Albert S. Blaisdell, D.D., 197.
Linnets, Concerning, 95.
Little Bustard in Sussex, 35.
Lizards in Ireland, 16, 37, 118.
Lodgings at Selborne, 107.
Lodgings in the New Forest, 136.
London Birds, Notes on, by A. Holte Macpherson, 68.
Long-tailed Tits, 96.
Long, William J., *School of the Woods*, by 225.
Lore, Cuckoo, 115.

Mackie, A. C., Week-end Trip on the Cam, by, 88.
Macpherson, A. Holte, Notes on London Birds, by, 68.
Malformed Mandible, Rook with, 77.
Marble Hill, 135.
Market Weighton Branch, 20.
Martin, Edward A., A "White" Family Bible, by, 144.
Martin's Nest, A Pendant, 177, 198.
Martins, Sparrows Immured by, 216.
Massee, George, F.L.S., *European Fungus Flora: Agaricaceæ*, 196.
May in September, 218.
Melilotus officinalis, 219.
Memorial to a Selbornian, 44.
Memorial to Richard Jefferies, 81.
Metamorphosis of the Frog, 16.
"Meteoric" Stones, 231.
Miall, Prof. L. C., *Round the Year*, by, 225.
Middlesex Lane, A Half-Hour with Nature in a, by Wesley T. Page, F.L.S., 82.
Migrants, Appearance of, 97.
Miles, Walker, *Field Path Rambles, Series XII. and XXIII.*, 198.
Millard, the Rev. F. M., Imaginative Natural History, by, 8.
Mole, Does the, Use its Teeth in Burrowing? 16.
Moorhens, 217.
Moth, Clothes, 10, 37.
Moth, Humming Bird Hawk, 19.
Moth, Red Under-wing, 217.
Moth, The Convolvulus Hawk, 19,
Moths, The Winter, 18.
Mudge, G. P., *A Text-Book of Zoology*, by, 28.
Mysterious Butterfly, A, 217.

Nail-Head Decoration of Selborne Houses, The, 182.
Naturalist's Directory, The, 57.
Naturalists' Society, The World Wide, 82.
Natural History at the Grove, Stanmore, by Wilfred Mark Webb, 147.
Natural History, Imaginative, by the Rev. F. W. Millard, 8.
Natural History Notes and Queries, 15, 31, 57, 73, 94, 114, 136, 155, 176, 198, 214, 226.
Nature in a Middlesex Lane, A Half-hour with, by Wesley T. Page, F.L.S., 82.
Nature Notes in Skye, by M. B., 148.
Nature Study and Life, by Prof. C. F. Hodge, Ph.D., 151.
Nature Study Exhibition, 41, 161.
Nest, A Pendant, 36.
Nest, A Pendant Martin's. 177, 198.
Nest Each Year? Does the Same Wild Bird Build a Similar, 33.
Nesting Boxes, 74
Nesting of Wild Duck, Early, 117.
Nesting Places, Queer, 216, 227.
Nesting, Swallows, 136.
Nests, 155.
Nests? Do Birds Assist One Another in Making, 155.
Nests in Odd Places, 178.
Nests, Wren's Roosting, 96.
New Epping Forest, A, 155.
New Forest, Lodging in the, 136.
New Members, 19, 39, 60, 78, 99, 119 139, 159, 179, 198, 219, 232.
News from the Branches, 40, 60, 79, 100, 219; Bath, 40, 60, 219, 232; Bromley (Quernmore) Junior, 79; Clapton (Lower Lea Valley), 40, 100; Croydon and Norwood, 20, 79, 219; Dover College (Junior), 79; Ealing (Brent Valley), 40, 60; Market Weighton, 20; Rother Valley, 232.
Noctule, The Great Owl or, 57.
Note, The Cuckoo's, 216.
Notes, Cumbrian, 32.
Notes from Brittany, 31.
Notes in Skye, Nature, by M. B., 148.
Notes on London Birds, by A. Holt Macpherson, 68.
Notes on the Barbary Dove, Collared Turtle Dove or Laughing Dove, by G. T. Rope, 174.
Notices for Railway Stations, Hotels, Inns, Cyclists' Rests, &c., 79.

O'Hara, John Bernard, *A Book of Sonnets*, by, 213.
One and All Gardening, edited by E. O. Greening, 114.
Oology, by F. W. L., 130, 176.
Optical Lantern and Accessories, edited by Paul N. Hasluck, 14.
Orchis latifolia and Orchis maculata, 158.
Other Worlds, &c., by Garrett P. Serviss, 114.

Ovenden, The Rev. C. J., D.D., *The Face of Nature*, &c., by, 155.
Owl, Scops, and Ring Ouzel, 178, 217.
Owl, Tengmalm's, 33.
Owls at Mortlake, 17.

Page, Wesley T., F.Z.S., A Half-hour with Nature in a Middlesex Lane, by, 82.
Paintings, A Gallery of Flower, 82, 104.
Partridges' Eggs Addled, 229.
Path in the Woods, The, 209.
Pathetic Appeal, A, 22.
Peach, Double Fruiting, 38.
Pearson's Magazine for October, 214.
Pendant Nest, A, 36.
Percival, Prof. J., *Agricultural Botany*, &c., by, 153.
Petty, S. Lister, *Some Plants of Silverdale, West Lancashire*, by, 94.
Photographic Camera and Accessories, edited by Paul N. Hasluck, 14.
Photographic Survey of Surrey, 107.
Photography, Colour, for Amateurs, 203.
Photography for Naturalists, by Douglas English, 29.
Piccadilly Widened, 103.
Pig playing Patience, 73.
Pilgrimage, A Thames, 2.
Pipits, Cuckoo and, 37.
Plant Relations and Plant Structure, by Prof. J. M. Coulter, 71.
Pleasures of the Telescope, by Garrett P. Serviss, 30.
Poetry of Trees, The Science and, by G. S. Boulger, F.L.S., F.G.S., 196.
Poisoning of Birds, Wholesale, 74.
Polecats, 73.
Portrait of Gilbert White, A, by Dr. Bowdler Sharpe, F.R.S., 132.
Portrait of Gilbert White, A, by Rashleigh Holt White, 142.
Pratt, Prof. H. S., *A Course of Invertebrate Zoology*, by, 114.
Preservation of our Indigenous Flora, &c., by G. S. Boulger, F.L.S., 184.
Preservation of Wild Flowers, 105, 202.
President's Address at Annual Meeting, 121.
Proceedings of the South London Entomological and Natural History Society, 155.
Protection, Bird, 142.
Protection, Bird, in India, 183.
Protection of Birds, Report of the Society for the, 72.
Protection of Birds, by Capt. G. A. Daubeny, 92.
Protection, Royal, for Birds, 44.
Protection, Wild Birds, Act, 43.

Rare Visitors, 217.
Rawnsley, The Rev. Canon, Sonnet by, 203.
Red Under-wing Moth, 217.
Redwing and Fieldfare, 76.
Report and Transactions of the Ealing Natural Science and Microscopical Society, 214.
Report and Transactions of the East Kent Scientific and Natural History Society, 153.
Report of the American Society for the Prevention of Cruelty to Animals, 72.
Report of the Epsom College Natural History Society, 93.
Report of the Felsted School Scientific Society, 92.
Report of the Hampstead Scientific Society, 72.
Report of the Kent and Surrey Committee of the Commons and Footpath Preservation Society 57.
Report of the Rugby School Natural History Society, 114.
Report of the Society for the Protection of Birds, 72.
Report of the Zoological Gardens, Ghizel, Cairo, 214.
Retrieving Collie, A, 33.
Reviews and Exchanges, 14, 27, 56, 70, 92, 113, 151, 196, 213, 225.
Richmond Park, 81.
Richmond View, The, 21, 221.
Ring Ouzel and Scops' Owl Nesting in Hertfordshire, 178, 217.
Robins, 216, 229.
Robinson, E. Kay, *To-Day with Nature*, by, 14.
Rook with Malformed Mandible, 77.
Rooks and Young Birds, 118.
Rope, G. T., Notes on the Barbary Dove, Collared Turtle Dove or Laughing Dove, by, 174.
Ross Bird-stalker, The, &c., by Charles Dixon, 153.
Round the Year, by Prof. L. C. Miall, 226.
Royal Protection Society for Birds, 44.
Rural Scenery, 21.

Sale of Eggs, The, 1.
Sale of the Wakes, 181.
School of the Woods, by William J. Long, 225.
Science and Poetry of Trees, The, by G. S. Boulger, F.L.S., F.G.S., 195.
Scientific Societies, South Eastern Union of, 103.
Scientific Societies, South Eastern Union of, Canterbury Congress of, 183.
Scops' Owl and Ring Ouzel Nesting in Hertfordshire, 178, 217.
Selborne Houses, The Nail Head Decoration of, 182.
Selborne, Lodgings at, 107.
Selborne, Natural History of, 225.
Selborne, Proposed Visit to, 61.
Selborne Saturday Afternoons, 20, 40, 60, 220, 232.
Selborne Society, 79.
Selborne Society Badges, 79, 179.
Selborne Society Notices, 19, 39, 59, 78, 99, 119, 139, 159, 179, 198, 219, 232.
Selborniana, 1, 21, 41, 61, 81, 101, 121, 141, 161, 181, 201, 221.
Selous, Edmund, *Beautiful Birds*, by, 28.
Serviss, Garrett P., *Astronomy with an Opera Glass*, by, 153.
Serviss, Garrett P., *Other Worlds*, &c., by, 114.
Serviss, Garrett P., *Pleasures of the Telescope*, by, 30.
Sharpe, Dr. Bowdler, F.R.S., A Portrait of Gilbert White, 132.
Shoveller Ducks, 98.

Shrews, Water, 227.
Skye, Nature Notes in, by M. B., 148.
Skylark, Nesting-place of, 227.
Small Eggs, Do Young and Old Birds Lay? 33.
Snow Buntings, 98, 229.
Song of Birds, The, 17, 34.
Songsters, Our Earliest and Latest, 76, 96, 115, 137.
Song Thrush in Winter, The, 34, 58, 76.
Sonnet, A, by the Rev. Canon Rawnsley, 203.
Sonnets, A Book of, by John Bernard O'Hara, 213.
South-Eastern Union of Scientific Societies, 103. 183.
Spaniel, Our Favourite, by Parnell Jones, 207.
Sparrows, 116.
Sparrows, Crows and, 98, 156.
Sparrows, Cruelty of, 177.
Sparrow, A Frightened, 216.
Sparrows Immured by Martins, 216.
Sparrows, War on the, 81.
Spider at Work, A, 19.
Spiders of the United States, The Common, by James H. Emerton, 197.
Spinning Fishes, by H. Wallis Kew, F.Z.S., 2.
Spring in Wessex, by Walter Johnson, 110.
Spurious Sports, 142.
Squirrels, Do they Hibernate? 73.
Squirrels in North London, 227.
Squirrels Playing Havoc, 57, 73, 94.
Squirrels Viewed and Interviewed, 170.
Stamens of Crocus, Variations in, 118.
Starling, 117.
Stickney, J. H., *Earth and Sky*, No. II., by, 214.
Stonehenge, 1.
Strange Adventures in Dicky Bird Land, by R. Kearton, 14.
Suet-eaters, 117.
Surgical Skill in Birds, 116.
Surrey, Photographic Survey of, 107.
Swallow, Albino, 216.
Swallows Nesting, 136.
Swan, The "Mute," 35.
Symbiosis, 198.

Tame Gulls, 75.
Teesdale, M. J., *The Trees of Dulwich, &c.*, 92.
Tele-Photo Lens, The, 204.
Telescope, Pleasures of the, by Garrett P. Serviss, 30.
Tengmalm's Owl, 33.
Tern, Black, in Cornwall, 35.
Text-Book of Geology, A, by Prof. A. P. Brigham, 71.
Text-Book of Zoology, A, by G. P. Mudge, A.R.C.Sc., 28.
Thames, Pilgrimage, A, 2.
Through Central Australia, by the Right Rev. Gilbert White, Bishop of Carpentaria, 65.
Thrush, An Egg-sucking, 36.
Thrush in Winter, The Song, 34. 58, 76.
Tits, Long-tailed, 96.
Toads, 37.
Toads and Lizards in Ireland, 113.
To-day with Nature, by E. Kay Robinson, 14.
Trees, Height of, in England, 118.
Trees of Dulwich, &c., The, by M. J. Teesdale, 92.
Trees, The Science and Poetry of, by G. S Boulger, F.L.S., F.G.S., 195.
Trout, Enemies of, by the Rev. Edmund T. Daubeny, 23.

Variations in Stamens of Crocus, 118.

Wakes, The, 181. 202, 221.
Walk, A Country, 164.
Want of Thought, 141.
War on the Sparrow, 81.
Wasps, 18.
Wasps and Bees, 18, 37.
Water Plants, Caterpillars in the Stems of, 213.
Webb, Wilfred Mark, Natural History at the Grove, Stanmore, by, 147.
Week end Trip on the Cam, by A. C. Mackie, 88.
Wessex, Spring in, by Walter Johnson, 110.
Westell, W. Percival, M.B.O.U., *The Early Life of the Young Cuckoo*, by, 84, 196.
White Blackbird, A, 36.
White Flowers, 218, 230.
White Family Bible, A, by Edward A. Martin, 144.
White, Gilbert, A Portrait of, by Dr. Bowdler Sharpe, F.R.S., 132.
White, Gilbert, A Portrait of, by Rashleigh Holt White, 142.
White, Rashleigh Holt, A Portrait of Gilbert White, by, 142.
White, The Right. Rev. Gilbert, Bishop of Carpentaria, Through Central Australia, by, 65.
Whiting, James E., *Some Notes on the Flora of Hampstead*, by, 31.
Wild Birds Protection Act, 43.
Wild Flowers, A Garden of, 22.
Wild Flowers, Preservation of, 104, 202.
Wild Nature Won by Kindness, 105.
Winter Moths, The, 18.
Witherby, Henry F., *Bird Hunting on the White Nile, &c.*, 70.
Won by Kindness, Wild Nature, 105.
Wood, by Prof. G. S. Boulger, 226.
Woodpecker, Black, 116, 214, 229.
Wood Pigeons at Canonbury, 115.
Wood, The Path in the, 209.
World-Wide Naturalists' Society, The, 82.
Wren's Roosting-Nests, 96.

Yaldwyn, Lieut.-Col. A. G., Remarks on the Common Fly, by, 169.

Zoological Gardens, The, 2.
Zoological Gardens, The, Ghizah, Cairo, Report of the, 214.
Zoology, A Course of Invertebrate, by Prof. H. S. Pratt, 114.
Zoology, A Text-Book of, by G. P. Mudge, A.R.C.Sc., 28.

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SELBORNIANA.

Stonehenge.—We have received the following from Mr. Edmund S. Taylor:—

"It is to be hoped that the efforts which are being made to free Stonehenge from enclosure will result in that ancient monument being again thrown open to the public, even on the ground of there being a right-of-way either through or close past it. But, it may be asked, why should Stonehenge be enclosed at all? No one, not even the most idiotic 'tripper,' could do it any damage, and surely no one could possibly run away with it! Is there not, indeed, an unduly large proportion of the commercial element mixed up with the ownership of much of our natural scenery, let alone of some of our historic monuments? Many choice bits of scenery, which comprise, say a waterfall, a pretty glen, or a curious rock formation, are often entirely ruined as natural scenery by being separated from their surroundings, fenced round, and preserved as show places. It is not that the 6d. or 1s. admission fee is begrudged, but with many of us, upon visiting such scenes, presumably for pleasure, a pitying feeling is evoked similar to that aroused at the sight of a caged lion. Stonehenge permanently enclosed would be a caged lion indeed! The marvel is that it should have been allowed 'at large' so long. It is stated that the enclosure has been made for the purpose of taking shillings from visitors for the repair of the monument; but surely the starting of a repairing fund instead would have sufficiently attracted the guineas of the wealthy. That a monument of national interest such as Stonehenge undoubtedly is should require 'gate money,' of any kind for its repair is a bit of an anomaly."

Croham Hurst.—The Croham Hurst Preservation Committee celebrated the purchase by the Croydon Corporation of the whole of this beautiful hill by a dinner, on December 7, at which the Life-membership of the Geological Society and an album of photographs were presented to the Secretary, Mr. E. A. Martin, in recognition of his untiring and successful efforts in in the cause. Photographs of Mr. Martin and Mr. Keatley Moore, Chairman of the Committee, were presented to the members.

The Sale of Eggs.—The following appeared in the *Standard* for December 3:—

"A word of warning to egg dealers and collectors. Some of them have been of late somewhat inconsiderate—to put the case mildly—in sending for sale by public auction eggs taken within prohibited areas or the eggs of birds specially protected by Orders of a County Council, sanctioned by a Secretary of State. In many

instances full *data* have been supplied and printed in the catalogues as to the time when, and the place where, the various clutches were taken. It is only fair to suppose that the owners of these eggs were unaware of the fact that the Orders had been violated. When such *data* are not supplied, it is allowable to imagine that there may be a reason for the omission. The Wild Birds' Protection Act (1894) provides that 'any person who shall take or destroy, or incite any other person to take or destroy,' protected eggs shall, on conviction, before two Justices of the Peace in England, Wales, or Ireland, or before the Sheriff in Scotland, be liable to a fine not exceeding one pound for every egg so taken or destroyed. The Act is not so clear as it might be as to the liability of persons buying and selling eggs known to have been illegally taken. But if the analogy with birds taken in close time is to hold good, it seems probable that anyone dealing with protected eggs would be liable to a fine. No such uncertainty obtains in the Isle of Man with regard to gulls' eggs. It is expressly provided that any person who shall have in his possession any egg of any gull 'shall be deemed to have taken such egg unless he shall prove the contrary.' Some such provision in the Acts applying to Great Britian and Ireland would practically put a stop to this illegal traffic. The auctioneers, we fully believe, have done what they could to prevent it; but it would be unfair to expect them to be conversant with the Orders made by the various County Councils, which occupy over fifty pages in the standard 'Manual to the Protection Acts.' Cases have occurred in town and country where attention has been called by formal protest, on the part of the Society for the Protection of Birds, to the fact that certain lots were illegally taken, and such lots have been quietly dropped. It is matter for congratulation that, though the law may fail to reach the collector who takes protected eggs, the Society often succeeds in spoiling his market, with the active co-operation of the auctioneers to whom the eggs are sent. It is said to be the intention of the Society to bring to the notice of the Home Secretary the fact that eggs taken in defiance of the law are advertised for sale. If this course be adopted, official action will probably be taken which should bring home to illegal egg-lifters the consequences of their misdeeds, and thus diminish, if it does not put an end to, the practice of taking eggs which all bird-lovers would wish to protect."

Death of a Contributor.—We were grieved to hear that on the very day on which our last number containing "Nature Notes from a Bath-chair" was published, the writer of that article was buried in St. Tudno's churchyard on the Great Orme's Head, overlooking the sea, with naught but the sky with its wild sea-birds over his grave.

A Thames Pilgrimage.—Lovers of the Thames will be glad to see a sequence of fifty water-colour sketches by Mr. C. J. Lauder, R.S.W., entitled "A Painter's Pilgrimage from London Bridge to Hampton Court," which are now on view at the Continental Gallery, 157, New Bond Street.

SPINNING FISHES.

THE reader will hardly need to be reminded that there are, in various parts of the world, numerous forms of nest-making fishes; and that, conspicuous amongst these, are several sticklebacks.[1] The species with which we are here concerned are the fifteen-spined stickleback

[1] Day, "Fishes of Great Britain and Ireland," i. (1880), p. lxi. On the nests of the common freshwater sticklebacks, the three-spined *Gasterosteus aculeatus* and the ten-spined *Gasterosteus pungitius*, see Coste, "Note sur la

(*Spinachia spinachia*) of European coasts, and the litttle four-spined stickleback (*Apeltes quadracus*) of North America. In both of these, the males, who undertake the task of building the nests, are spinners—producers of threads of remarkable character—which serve to bind together the materials of the nest.

Spinachia spinachia[2] is about six inches in length, and is the largest of its kind. The first account of its nests known to me is that of Johnston, published in 1839. They occurred in rocky and weedy pools, between tide-marks, on the Berwickshire coast.

They are about eight inches in length, and of an elliptical form or pear-shaped, formed by matting together the branches of some common Fucus, as, for example, of the Fucus nodosus, with various confervæ, ulvæ, the smaller florideæ, and corallines. These are all tied together in one confused compact mass by means of a thread run through, and around, and amongst them in every conceivable direction. The thread is of great length, as fine as ordinary silk, tough, and somewhat elastic; whitish and formed of some albuminous secretion. The eggs are laid in the middle of this nest in several irregular masses of about an inch in diameter, each consisting of many hundred ova, which are of the size of ordinary shot, and of a whitish or amber colour. . . . Masses of eggs, in different stages of their evolution, are met with in the same nest. It is evident that the fish must first deposit its spawn amid the growing fucus, and afterwards gather its branches together around the eggs, weaving and incorporating at the same time all the rubbish that is lying or floating around the nucleus.[3]

Another account, written independently, is by Dr. R. Q. Couch, from observations made on the Cornish coast.

During the summers of 1842 and 1843, while searching for the naked molluscs of the county, I occasionally discovered portions of sea-weed, and the common coralline (*C. officinalis*) hanging from the rocks in pear-shaped masses, variously intermingled with each other. On one occasion, having observed that the mass was very curiously bound together by a slender silky looking thread, it was torn open, and the centre was found to be occupied by a mass of transparent amber-coloured ova [of *Spinachia spinachia*.] . . . The nest varies a great deal in size, but rarely exceeds six inches in length, or four inches in breadth. It is pear-shaped, and composed of sea-weed, or the common coralline, as they hang suspended from the rock. They are brought together, without being detached from their places of growth, by a delicate opaque white thread. This thread is highly elastic, and very much resembles silk, both in appearance and texture; this is brought round the plants, and tightly binds them together, plant after plant, till the ova, which are deposited early, are completely hid from view. The silk-like thread is passed in all directions through and around the mass in a very complicated manner. At first the thread is semi-fluid, but by exposure it solidifies; and hence contracts and binds the substances forming the nest so closely together, that it is able to withstand the violence of the sea, and may be thrown carelessly about without derangement. . . . Some of these nests are formed in pools, and are consequently always in water; others are frequently to be found between tide-marks, in situations where they hang dry for several hours during the day.[4]

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manière dont les Epinoches construisent leur nid et soignent leurs œufs." Comptes rendus des séances de l'Académie des Sciences, xxii. (1846), pp. 814-8, transl, Edinburgh New Philosophical Journal, xlii. (1847), pp. 322-7; "Nidification des Epinoches et des Epinochettes," Mémoires des Savants étrangers, x. (1848), pp. 576-88; Landois, Der Zoologische Garten, xxii. (1871), pp. 1-10; &c.

[2] *Gasterosteus spinachia—Spinachia vulgaris—Spinachia spinachia.*

[3] G. J., "On the nests of the Fifteen-spined Stickleback," History of the Berwickshire Naturalists' Club, i. (1839), pp. 200-1; Annals of Natural History, v. (1840), pp. 148-9.

[4] R. Q. Couch, "On the Nidification of Fishes," Report of the Royal Institution of Cornwall, 1843, pp. 30-1; Zoologist, ii. (1844), pp. 795-9.

A further account is given by Jonathan Couch.

The method of proceeding in forming these nests appears to be that the fish either find growing, or certainly in some instances, collect together some of the softer kinds of green or red sea-weeds, and join them with so much of the coralline tufts (Janiæ) growing on the rocks as will serve the purpose of affording firmness to the structure, and constitute a mass five or six inches long, of a pear-like shape, and about as stout as a man's fist. A thread is employed with much skill and patience in binding these materials together; and there is no doubt that its substance is obtained from the creature's own body. It much resembles silk, and is elastic. Under a good magnifier it appears to be formed of several smaller threads glued together, and it hardens into firmness by exposure to the water. But there is reason to believe that it is not exuded, nor the roe deposited, all at once; for it is passed through the mass with intricacy in various directions, and the roe appears in little clumps, which are in different degrees of development. . . . A singular instance of constructive skill and patience in the formation of its nest, which occurred within my knowledge, is deserving of remembrance. The situation selected was the loose end of a rope, from which the separated strands hung at about a yard from the surface, over a depth of from four or five fathoms; and to which the materials could only have been brought, of course in the mouth of the fish, from the distance of about thirty feet. They were formed of the usual aggregation of the finer sorts of green and red ore-weed; but they were so matted together in the hollow formed by the untwisted strands of the rope, that the mass constituted an oblong ball of nearly the size of the fist; in which had been deposited the scattered assemblage of spawn, and which was bound into shape with the thread of animal substance already described, and which was passed through and through in various directions, while the rope itself formed an outside covering to the whole.[5]

Professor Möbius has observed the nests of this fish on the coast of Schleswig-Holstein. He states that the creature employs delicate plants which grow in shallow water, and that it masses these upon grasswrack or sea-weeds, or on the piles of landing-stages, until they form a soft rounded mass 5-8 centimetres in diameter. Around this mass the fish spins in all possible directions a white, silky thread. In Kiel Harbour the nests are found in May and June; and the females deposit their eggs between the plant-masses of the nest, in clusters of 150-200.[6]

Finally, another account has been published by Mr. E. E. Prince, from observations made at St. Andrews. The nests were found, from April to June, among sea-weeds fringing tidal rock-pools. The dimensions given by Möbius were often exceeded, the size depending on the character of the materials, and on the number of females ovipositing in the nest. According to this observer, the fish often selects a growing mass of

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[5] J. Couch, "History of the Fishes of the British Isles," i. (1862), pp. 181-2.

[6] K. Möbius, "Das Nest des Scestichlings," Schriften naturwiss. Vereins für Schleswig-Holstein, vi. (1885), p. 56, transl. Annals and Magazine of Natural History (5), xvi. (1885), p. 153; "Ueber die Eigenschaften u. den Ursprung der Schleimfäden des Seestichlingnestes," Archiv. fur mikroskop. Anatomie, xxv. (1885), pp. 554-63. In a more recent communication—Möbius, Sitzungs-berichte der Gesellschaft naturforschender Freunde zu Berlin, 1893, pp. 167-8—this naturalist has recorded the finding of a nest of *Spinachia spinachia* made in trees of *Obelia gelatinosa* on the shell of a living whelk (*Buccinum undatum*). He notes that the male in order to keep guard over the nest—and this is his invariable habit—would be bound to follow the wanderings of the mollusc.

Fucus-fronds, projecting 8-10 inches from the rock, and having a diameter in the widest part of 5-6 inches; or a bunch of smaller algæ may be chosen, and then the nest assumes a less cylindrical and more spherical form, with a diameter of 3-5 inches. In the former case, little labour is involved, the fish merely binding the fronds with threads, which pass round transversely to the long axis of the mass. When smaller materials are used, however, much labour is bestowed upon the structure. Here the growing tuft merely forms a foundation on which gathered fragments of *Ulva*, *Corallina*, Hydrozoa, &c., are woven; and this heterogenous collection is intermingled with the growing fronds and secured by threads, so that it forms a compact mass. The materials are often so completely interwoven that it is difficult to tear them asunder; but they are always disposed so as to have interspaces, which are enlarged by the fish into pocket-like cavities; and in these cavities one or several females deposit the eggs.[7]

Before the observations of Möbius very little was known of the nature of the threads; it was said to be uncertain whether they were spun by the male or by the female, and little or nothing had been ascertained of the source of the secretion or of the organ by which it is emitted. It is true, however, that Dr. Heincke, who had observed nests of *Spinachia spinachia* at Kiel and in the Hamburg Aquarium, had suggested that the threads came from the urinary bladder[8]; and that, in the case of *Apeltes quadracus*, Professor Ryder had given, in 1882, a short account of the spinning habits of the *male* and of its threads.

Confining our attention for the moment to *Spinachia spinachia*, we find that Johnston supposed the building and spinning to be done by the female; Heincke believed the sexes to co-operate; but Möbius and Prince have made it clear that the male alone is the builder, and that it is he who spins and surrounds the nest with threads. Möbius found that the male continued to draw threads round the nest after eggs had been deposited; and in this way the various egg-clusters were over-spun and protected. The author figures a nest, which—taken from Kiel Harbour—had been placed in an aquarium together with the male to which it belonged. There were three egg-clusters, of which the uppermost was unprotected and merely rested on the nest; after two days the fish died, but he had managed in the meantime to over-spin this egg-cluster, and also to draw some threads round the twig to which the nest had been tied. Prince, who carefully watched the processes of building and spinning in tanks at St. Andrews, states that though females distended with ova often hovered near during the construction of the nest, not

[7] E. E. Prince, "On the Nest and Development of *Gastrosteus spinachia*," Annals and Magazine of Natural History (5), xvi. (1885), pp. 487-96.

[8] F. Heincke, 1882; quoted by Möbius.

one was seen to take any part in the work. In a case in which a female was observed to oviposit in a nest already containing eggs, the male immediately bound with threads the part of the nest in which the new cluster had been placed.

Details of much interest are given by Möbius respecting the source and nature of the threads; and his findings have been confirmed by Prince. Möbius, it is said, has shown that "the kidney of the fifteen-spined stickleback acts as a spinneret"[9]; and it is true that the secretion of which the thread is composed was ascertained by this naturalist to originate in the kidneys. He found further that the secretion is stored in the urinary bladder, and is emitted, in a thread-forming condition, from the urinary aperture, just behind the genital pore and anus. The author stated that the thread is usually 0·12—0·13 mm. in diameter, and that the microscope shows it to consist of several cords stuck together, which in their turn are composed of very fine parallel filaments. The substance is nitrogenous, and is a peculiar modification of mucin. The matter is formed, in the kidneys, by the epithelial cells of the urinary tubules, which exert this form of activity only during the breeding season; at this time the kidneys are much inflated, and from them the mucus passes through the ureters into the urinary bladder (now dilated into a large pyriform vesicle), from the opening of which —the urinary aperture—the mucus finally oozes and adheres to foreign bodies. After the breeding season the volume of the kidneys and bladder diminishes, and these structures then contain urine only. Prince also found the male's kidneys considerably swollen at breeding time; and sections revealed an altered condition in the urinary tubules, the epithelial cells of which were evidently active in the secretion of thread-forming mucus; the ureters were of great capacity; and the urinary bladder, acting as a reservoir for the mucus, was much distended. The matter assumes a fibrillar character while yet in the ureters and bladder. Its flow from the urinary aperture is doubtless under the control of the animal; but it is very abundant and often appears to ooze involuntarily. When a mass of sea-weeds has been selected for the nest, this author says, "the fish has merely to approach closely, so that the protruding mucus may adhere to a projecting frond, and by passing and re-passing round the mass the weaving operation is accomplished. Occasionally a rapid ejaculatory movement is observed, and it is interesting to note that the threads are not carelessly superposed, except when necessary for increasing the density of the nest, but are crossed at an angle by the varying movements of the fish, so that rhomboidal spaces are enclosed and a regular reticulum is thus produced." The several strands composing the thread measure, according to this author, ·0008—·00092 of an inch in diameter, the complete thread having a diameter of ·0046—

[9] Boulenger, "Zoological Record," xxiii. (1886); "Pisces," p. 16.

·0051 of an inch; the component strands are made up of fine homogeneous filaments adhering in parallel order.

The spinning-habits of *Apeltes quadracus* appear to have been first observed by Mr. W. P. Seal about 1879. The nests, compared with those of *Spinachia spinachia*, are tiny structures; but in manner of formation they are similar. Some of these nests were brought by Mr. Seal to Professor Ryder in 1881, from ditches along the Delaware below Philadelphia. Afterwards this naturalist received, from the same collector, a pair of the fishes; and of these the male obligingly completed a nest under observation. Ryder's account is as follows:—

> The male binds the nest together by means of a compound thread which he spins from a pore or pores behind the vent, while he uses his bobbin-shaped body to insinuate himself through the interstices through which he carries his thread with which he binds a few stalks of *Anacharis* or other water-weeds together, bringing in his mouth every now and then a contribution of some sort in the shape of a bit of dead plant or other object, which he binds into the little cradle in which the young are to be hatched. The thread is spun fitfully, not continuously. He will go round and round the nest for perhaps a dozen times, when he will rest awhile and begin again, or turn suddenly round and force his snout into its top with a vigorous, plunging motion, as if to get it into the proper shape. Its shape is somewhat conical before completion, an opening remaining at the top. . . . The thread is wound round and round the nest in a horizontal direction in the case we are describing, and if this thread is placed under the microscope when freshly spun, it is found to be composed of very thin transparent fibres to the number of six or eight; where they are broken off they have attenuated tapering ends as though the material of which they were made had been exhausted when the spinning ceased. Very soon after the thread is spun particles of dirt adhere to it and render it difficult to interpret its character. I have seen the thread being drawn out of the abdomen repeatedly, but not from the vent; it appeared to me more probable that it came from the openings of a special spinning gland. Its glass-like transparency shows that it is not made up of ingested food, the particles of which would exhibit themselves were that the case. The nest measures half an inch in height and three-eighths in diameter. Upon opening the male I find a large vesicle filled with a clear secretion which coagulates into threads upon contact with water. This vesicle . . measures one-fifth inch in length and an eighth in diameter. As soon as it is ruptured it loses its transparency, and whatever secretion escapes becomes whitish after being in contact with the water for a short time. This has the same tough, elastic qualities as when spun by the animal itself, and it is also composed of numerous fibres, as when a portion is taken which has been recently spun upon the nest.

Ryder adds that possessing only a single male, he had not learned anything as to the origin of the secretion which he found in the vesicle, and he had obtained no precise information as to the opening through which the thread passed.[10] Afterwards, however, in the light of the papers of Möbius, he was satisfied that the vesicle was the bladder; and that the thread-emitting pore was the urinary aperture.[11]

Next to the nests of sticklebacks, perhaps the most

[10] J. A. Ryder, "Notes on the development, spinning habits, and structure of the four-spined stickleback *Apeltes quadracus*," Bulletin of the United States Fish Commission, i. (1882), pp. 24-9.

[11] J. A. Ryder, "The spinning habits of the adult male *Apeltes quadracus* during the breeding season," Report of the United States Commission of Fish and Fisheries, xiii. (1887), pp. 514-6.

notorious fishes' nests are those which have been reported from time to time from the gulf-weed of the mid-Atlantic (Sargasso Sea), and which are attributed to the curious little *Pterophryne histrio—Antennarius marmoratus*, a well-known member of the gulf-weed fauna. These nests and other similar masses of weed and clusters of eggs are held together by vast quantities of threads. The threads, however, belong to the eggs, and thus are in no way comparable with the genuine spinning-work of the nests of the males of sticklebacks.

H. Wallis Kew, F.Z.S.

IMAGINATIVE NATURAL HISTORY.

THERE is a work well known to the clerical readers of Nature Notes, Cruden's "Concordance to the Bible," the first edition of which was published in 1737. Under more than one head we find some remarkable statements. Thus, as to the "Unicorn," he says, "It is much disputed among the learned, whether there be, or ever was, such a creature as we call the unicorn." Then he considers, much as Canon Tristram does ("Natural History of the Bible," *sub. voc.*) what animal may be meant by the Hebrew *Reem;* but he fails to notice that there is no single place in the Bible which implies or suggests that the *Reem* had but one horn; and that one passage (in Deut. xxxiii.) implies the contrary. The literal translation here is, "Horns of a *Reem* (are) his horns." The notion of a one-horned animal apparently comes from the Septuagint, which has here the self-contradictory translation, "Horns of a *Monoceros*." Mr. Cruden adds, "It is said to have but one horn, growing out of its forehead between its eyelids, but as hard as iron." The Authorised Version avoids the contradiction of the Septuagint by an unwarrantable variation from the original, writing "unicorns" (with "*Hebrew, an unicorn*" in the margin). From the Revised Version, it is needless to say, the "unicorn" has finally disappeared.

Under the word "Dragon" Mr. Cruden supplies the following information. "As to the dragons which are talked of, and are often mentioned in books, they are for the most part only old serpents grown with age to a prodigious size. Some are described with wings, feet, claws, crests, and heads of different figures. There is no question but there are winged serpents. . . . Real dragons, by Solinus's account of them, have a small mouth, and cannot bite; or if they do, their biting is not venomous. The Egyptians call them good geniuses, and keep them tame in their houses, &c., &c."

It would be interesting, if it were possible, to trace the origin of the belief in the existence of dragons, as popularly conceived. I suppose the Chinese have believed in them from very early

times. The *word* seems to me a mere modification of a Greek word for *serpent*, meaning literally "the seeing or keen-sighted one." The fabled chimæra comes rather near the traditional form, being "in the fore part a lion, in the hind part a serpent (*drakon*), and in the middle a goat (*chimæra*)."

Of the serpent, Mr. Cruden tells us: "It is said that, when he is old, he has the secret of growing young again, and of stripping off his old skin or slough, by squeezing himself between two rocks. He assaults a man if he has his clothes on, but flees if he finds him naked. . . . When he goes to drink at a fountain, he first vomits up all his poison, for fear of poisoning himself as he is drinking." Then come the cautious remark, "Though this observation be not assented to by everybody, it has nevertheless many defenders." As to the "deaf adder," we are told, "It is said that it applies one of its ears hard to the ground, and stops the other with the end of its tail."

Much more might be quoted, but this is perhaps more than enough of Mr. Cruden. I turn to a more modern writer, of a very different stamp, Mons. Jules Michelet, and his book on "The Bird." I ought to confess that I know it only through a not immaculate English translation. This writer explains the soaring of birds in a very simple and positive fashion. "Would it grow light, it inflates its dimension, while diminishing its relative weight; by this means it spontaneously ascends in a medium heavier than itself." It was, I think, of this theory that the remark was made that the bird in so doing would assume "an aldermanic appearance" which has not hitherto been detected. "To descend or drop, it contracts itself, grows thin and small." Man, in his "fatal ignorance, assumed that the bird was a ship, not a balloon." In another place. M. Michelet describes a "brave and beautiful bird," which wages war, in a manner surely unique, on the serpents in the perilous savannahs of Guiana. This bird retains "some relics of the ancient weapons with which the primeval birds were very probably provided in their struggle against the dragon. These are, a horn on the head, and a spur on each of the wings. With the first it stirs up, excites, and rouses out of the mud its enemy. The others serve as a guard and defence; the reptile, which hugs and folds it in its embrace, at the same time plunges into its own body these keen darts, and by its own constriction, its own actual exertions, is poinarded." The name of this heroic bird is given as "the Kamichi (*Palamedea cornuta*)."

Now, of course M. Michelet's book is intentionally written in an imaginative, poetical style; but the question arises, whether he has not drawn on his imagination for his facts, and not merely for his manner of presenting them. For example, take this, from a description of a thrush's nest—"Look within: it is an admirable cupola, neat, polished, shining, and not inferior to glass; you may see yourself in it as in a mirror!"

F. M. Millard.

THE GREAT BUSTARD.

THE last dwelling place of the great bustard or *Otis tarda* is believed to have been the fen region of Norfolk, though one was killed on Salisbury Plain during the Franco-German War, and is now preserved in the Blackmore Museum, at Salisbury. An ingenious way of destroying a bird which, according to Gilbert White, would hardly allow a human being to come within three or four furlongs of it, was to bait a spot within range of a battery of shot guns. Strings were fastened to the triggers, and the guns were fired by pulling the strings as soon as the birds were busily at work eating the tempting but dangerous bait. The great bustard was for centuries fairly plentiful in many parts of England and of South-east Scotland, but its large size, the absence of cover on the bare plains it frequented, and its reputation at table, made its destruction easy, and, with the growth of population, only too certain. The little bustard, a much smaller bird, is common in Southern Europe and Northern Africa, but is very rarely seen in England, and then invariably in winter.

Newmarket Heath, Salisbury Plain, the South Downs, and Royston Heath, were all well-known dwelling-places of the great bustard, and Devon, Wilts, Norfolk and Suffolk, Lincolnshire and Cambridgeshire, were all at times visited by it. Mr. Yarrell mentions that, as late as 1819, nineteen were seen together in Norfolk, at Westcape, and were carefully protected by the proprietor. Sir Robert Sibbald records that they were occasionally seen in Scotland. He adds that *unam non ita pridem in Lothiana Orientali visam fuisse*. Mr. William Young, of Boroughhead, shot one in Morayshire in 1803, and Mr. Mudie, in his "British Birds," mentions that he saw two birds in the parish of Carmyllie, in Forfarshire, which he had no doubt were bustards, but they were seen in the early morning, at a distance of a quarter of a mile, and he might have been deceived as to the species. Mr. Thompson says they have long been extinct in Ireland, though Smith enumerated them in 1749 among the birds of Cork. The bustard was sometimes on sale in the poulterers' shops of the Palais Royal, and £2 to £4 were asked for it. It is said still to be found on the plains of Spain, Italy and Greece.

"The great bustard, like the crane," says Mr. J. C. Mansel-Pleydell in his "Birds of Dorset," "was also a resident at no very remote epoch in Great Britain." Pulteney, writing in 1813, says: "The bustard is now becoming very scarce even in Wiltshire; a few stragglers make their appearance now and then about Woodyates and Ashmore Downs; single birds have been killed in Langton parish, in Studland, and elsewhere." The late Sir William Oglander is said to have shot three on the

same day. The Rev. W. Chaffin, in the second edition of his "Anecdotes of Cranbourn Chace," published in 1818, thus refers to his meeting with a flock of bustards in 1751: "I was shooting dotterels near Winterslow Hut, when the report of my gun disturbed twenty-five bustards, which flew away quietly over the hill called Southern Hill. I followed them on horseback and came upon them nearly within shot. As they rose, the noise of their wings frightened my horse, which I was leading; he started back, threw me down, and ran away. As soon as I got upon my knees, I fired at the birds, but they had got out of range. I saw one separate itself from the rest, and alight on the side of the opposite hill and spread out its wings as if wounded, but before I could come within shot it took flight and followed the line of its companions." He adds: "I believe such a number of bustards will never again be seen in England together." On January 23, 1871, three bustards appeared near Maddington, a village on Salisbury Plain, and one of them was killed by a bird-keeping boy with a marble which he happened to have in his pocket at the time, and with which he charged his gun (*Zoologist*, 1871, p. 2479). A few days later, on January 26, the two survivors were seen near the village of Berwick St. James, and one, a male, was shot with a bullet (*Zoologist*, 1871, p. 2510). It is preserved in the Salisbury Museum. Nearly ten years later, on January 1, 1880, a hen bustard, weighing nine pounds, was shot by Mr. W. Hibberd in a turnip-field at Handley, near Woodyates Inn, and was sent for preservation to Mr. Hart, of Christchurch (*Zoologist*, 1880, p. 110). This is the Dorset specimen mentioned in the fourth edition of "Yarrell's British Birds," vol. iii., p. 208.

The mere fact that so much industry is needed to hunt up its recorded appearances shows how rare it must have been for generations past. And as no fossil remains of it occur, nor is it found in kitchen-middens in this country, it seems probable that it was introduced by the Romans, who brought the pheasant and the cherry, and who knows what else, to this country? Rifles have been deadly foes to it, though before the rifle was used with much effect snares were in common use, and its capture was an achievement much gloated over. On the other hand, in "Martin's New Dictionary of Natural History," in 1785, this passage occurs: "These birds are frequently seen in flocks of more than fifty on the extensive Downs of Salisbury Plain, on Newmarket and Royston Heaths in Cambridgeshire, in the Dorset uplands, and even as far north as March or Lothian in Scotland." Mr. Stevenson read a paper at the Norwich meeting of the British Association, on the "Former Abundance of the Bustard in England, and the Cause of its Extirpation." Be this as it may, it would seem that the year 1838 witnessed the death of the last English survivor of this splendid race of birds.

The kind of way in which this happened is illustrated by the

late Mr. Tristram Valentin, who states that on one occasion a man (the name is withheld from execration) is said to have succeeded in killing no fewer than seven at one discharge, the birds being presented to the Prince of Wales (George IV.), the Duke of York, and others. And we are sorry to say that the gifts are reported to have had the effect, in some degree, of procuring the berth of head gamekeeper at Windsor for the son of this arch bustard-slayer. A more modest reward, gained by an equally felonious person in 1530 is thus recorded by the same writer: "Itm in reward the XXVth day of July to Baxter's Svnt of Stannewgh for bryngyng of ij yong busterds ijd." The worst is that no chance has ever been given to the bird to reinstate itself, which it would doubtless have done with great pleasure and ease under favourable circumstances if permission had been given.

It is greatly to be hoped that Lord Walsingham's experiment will enable us to again observe this fine fowl, which Gilbert White thought as impressive in a landscape as fallow deer. This, however, seems very improbable, since the *Wilts and Devizes Gazette* of July 18, 1901, mentions that of the seventeen great bustards recently brought over by Lord Walsingham ten had already been wantonly shot. The destroyer of the tenth, a gamekeeper, one need hardly add, had been convicted and fined. It was mentioned in the same report that Lords Walsingham and Iveagh were doing all they could to protect the bustards, but not with very great success, one would fear. The fate of all large, scarce, unfamiliar, beautiful wild creatures is to be pitilessly slaughtered, and laws are powerless to protect them in the present state of public morals.

(Dr.) A. J. H. Crespi.

Cooma, Wimborne.

THIS IS THE FOREST PRIMEVAL.

By the Editor.

Lives of the Hunted. By Ernest Seton-Thompson (Nutt).

The Great Deserts and Forests of North America. By Paul Fountain (Longmans).

The World of the Great Forest. By Paul Du Chaillu (Murray).

To us who live in the heart of a country long ago reduced to the extremity of artificiality there is something inexpressibly refreshing in a reminder that there are yet unenclosed tracts of desert and forest, the homes of a truly wild flora and fauna. The object of the Selborne Society is very much that which Mr. Seton-Thompson in his preface states as that of his own writings, not primarily—excellent though that object be—the

prevention of cruelty, but rather the prevention of extermination; and, that being so, Mr. Seton-Thompson's optimistic confidence that the waste, unenclosed lands will always remain, would be very comforting if we could be quite as certain of the prospect as he appears to be. But, after all, unenclosed lands, though they may interest the geologist, will hardly charm the Selbornian naturalist if the indigenous flora and fauna are to cease to exist. We know of no plainer or more unvarnished tale of senseless extermination than that which Mr. Fountain tells of the wiping out of ten million American bison—all but the entire wild stock of the species—during the first three-quarters of the nineteenth century; but steps have only been taken just in time to prevent the same vandalism being repeated in the case of many species of "big game" in Africa. It is undoubtedly true, as Mr. Seton-Thompson has pointed out, that the end of the life of the wild animal is naturally a violent one; but without the intervention of man, with his wholesale systems of slaughter, sparing neither female nor young, the struggle for existence, fatal though it be to the individual, is not, save by the imperceptibly slow process of selectional change, fatal to the species. No better check to this march of extermination would seem to be at present devisable than the substitution of the camera for the gun, the note-book of the observer for the mere bald "butcher's bill" of that sportsman of whom we prefer to think as the sportsman of the past.

We welcome all three of these works as embodying much original observation and an intense love of the animal world. M. Du Chaillu's work commands respect as that of a veteran observer. It traverses the whole range of animal life in tropical Africa, from the ngina or gorilla to the butterflies and ants: he makes the animals tell their own stories; and his text is illustrated with some telling drawings. The style is, however, rather that of the "book for children": it may have suffered in translation; and we do not think that any additional realism is gained by the substitution of the native names, such as "njego," or "mboyo," with their puzzling initial n's or m's, for the familiar leopard or jackal. Mr. Fountain's sketches of the Mississippi Valley, California and Colorado, are a simple narrative, without literary or scientific pretensions, of his own observations during a period of thirty-five years. He devotes chapters to the red men, the cow-punchers, cow-stealers, and such-like, to a cypress swamp with its snakes, frogs and birds, and to spiders and flies; but not even a scientific name is added, nor is there much reference to plant-life. Worst of all, there is no index. Interesting as the book is to read, this deprives it of any value for reference. Mr. Seton-Thompson no longer makes his animals talk: though fully intelligible to a child, his book shows no suggestion of writing down to a child's capacity; and, charming as are his pathetic stories, their charm is enhanced by the dainty marginal and other illustrations. Once or twice he for a few

lines comes perilously near the fault of "fine writing," "purple patches" almost Meredithian in obscurity; but this is but a momentary aberration. It may be urged against his work, as it was against Landseer's pictures, that he deliberately endows his animals with human characteristics; but, if he does so, it is only because, in his personal intercourse with the animals, he has convinced himself that these characteristics are common to man and beast. He admits that each of his stories illustrates some one animal virtue, if we may be allowed the word; and that in several cases he has combined incidents in the lives of several different beasts; and yet by his happy power of individual portraiture he certainly succeeds both in interesting and in instructing us better than the authors of either of the other works which we have coupled with his.

REVIEWS AND EXCHANGES.

To-day with Nature. By E. Kay Robinson. Grant Richards. Price 6s.

This neat and handy little volume consists of reprints from *To-day*, of notes from the diary of a true lover of Nature. The notes are mostly brief and the transitions abrupt, but we think the author has been ill-advised in adding to this disjointed appearance by inserting head-lines in the style of "the new journalism." Though mainly ornithological, the notes have a wide range, they embody much original observation and thought, with some playfulness of expression, and the importance is not to be measured by their brevity. Though containing over 300 pages, the volume might form an agreeable pocket companion on a country walk.

Strange Adventures in Dicky-bird Land: Stories told by Mother Birds to Amuse their Chicks, and Overheard by R. Kearton. Illustrated from photos taken direct from Nature. Messrs. Cassell and Co. Price 3s. 6d.

It was a happy thought of the brothers Kearton to link together a series of photographs, mostly of nests and fledglings, into twenty simple tales for children. Though mostly avian, the photographs include charming studies of a cat, a fox-cub, a frog and a trout; the type is large and clear, the language so simple that children can read the book for themselves, and above all, it is satisfactory to know that a thorough Selbornian humanity is inculcated throughout.

Optical Lanterns and Accessories; How to Make and Manage Them, including Instructions on Making Slides. With numerous engravings and diagrams. Edited by Paul N. Hasluck. Messrs. Cassell and Co. Price 1s.

Photographic Cameras and Accessories. Same editor, publishers and price.

These eminently practical little handbooks, carefully condensed by the editor from the many columns of matter bearing on their subjects in the pages of *Work*, will be of the utmost use to any of the numerous "handy men" who are given to construct their own apparatus. Even cinematograph lanterns, spring and pneumatic release, time and instantaneous shutters, and tripod-stands, are included in their scope.

Received:—*The Victorian Naturalist* for October; *Humanity, Science Gossip, The Naturalist, The Naturalists' Journal, The Irish Naturalist* and *The Animal World* for December.

NATURAL HISTORY NOTES AND QUERIES.

Hoar Frost on Trees and Hedges.—The severe frosts experienced on several occasions in November afforded some of the most beautiful hoar frosts experienced for years. I was particularly interested in a closely-cropped holly hedge which contained thousands of delicately woven spiders' webs, every portion being laden with pearly white hoar frost, and every spike of the foliage tipped with white, the darker foliage showing up the tips to the best advantage.

On another date, after several days of fog and frost, which had caused the elms and oaks to become clothed with a thick coat of ice, the sun broke out, and in a short time the brown foliage began to appear under its influence, and presently a picture rarely seen of the trees, being brown and thawed on one side, and white on the other for a time, and by degrees the sun loosened the frost which covered the ground underneath with a heavy coating.

JAMES HIAM.

Communication among Dogs.—The sagacity of the dog seems as if it will never die out, and we all hope that it will not, as that interesting species of the animal world is endeared to us in many ways. A pithy narrative appeared in *Our Dumb Animals* for November, which I am sure will interest the readers of NATURE NOTES, if space can permit its insertion. Mr. B. T. Harper, of Southbridge, Mass., is the gentleman who gave the following experience, and thereby, also an illustration of his genial hospitality to our canine friends :—.

"The fact that dogs have a way of communicating news to one another was demonstrated to me in a very singular and amusing fashion about four years ago. It was in South Georgia, where as yet little provision is made for the comfort of domestic animals, that during the cold, wind-swept nights, shelterless cows and mules wander about restlessly ; where chickens and turkeys roosting on leafless trees fill the sharp air with their plaintive voices, while dogs and other domestic animals must seek their own night quarters as best they can. One of those bitter cold nights, such as a cold wave often brings, I heard at our front door the unmistakable sounds of scratching and whining, and found upon opening, two of my little neighbourhood friends, a pug and a little terrier, asking admission, to all appearances. In face of the cruel cold it was granted them, and they were welcome to share the comfortable quarters of my own two dogs. In the morning they took their departure, but how great was my consternation to see them return the following cold evening, accompanied by a large Irish setter, who likewise wagged admission to the warm quarters that he seemed to have knowledge of. If there were any doubts as to whether these hospitable night lodgings were discussed among the shelterless dogs of the neighbourhood, these doubts were removed on the third night, when my three tramps returned, their number having increased by another pug and an old pointer. The mute but eloquent language of their wagging tails, the humble appeal in their sincere eyes, were certainly amusing. With my own two pets and these five tramps I had now seven dogs stretched out comfortably before my dining-room grate. By their irreproachable behaviour and their many ingratiating ways, they had insured for themselves a welcome at our house as long as the cold spell lasted, which was nearly a week. As soon as the cold subsided they returned no more. Is not this good evidence of the power of communication among our speechless friends ?"

2, *Canonbury Place, N.*, CHAS. E. J. HANNETT.
December 6.

Hedgehogs.—I shall thank you to inform me as to whether hedgehogs hibernate, and what kind of places they choose for so doing. As a subscriber of many years to NATURE NOTES, I venture to ask for an answer in your next number.

The Hall, Belgrave, Leicester, ISABELLA ELLIS.
November 22.

[The hedgehog, when cold weather begins, makes itself a snug nest of dead leaves, covered up in which it hibernates very completely, its temperature falling, and its circulation and respiration markedly diminishing, nor does it awaken until really warm weather returns.—ED. *N.N.*]

Does the Mole use its Teeth in Burrowing?—One would naturally suppose the teeth of the common mole (*Talpa europæa*) were quite unfitted for aiding the animal in burrowing in the earth. The following observation, however, shows that this conclusion is erroneous. One sunny day last November, I was driving down a lane at Grimstone, near King's Lynn, when I saw a mole on the footpath. I immediately got down and picked the creature up. It seemed dazzled by the sunlight, but otherwise quite active. Laid upon my left forearm so that its movements could be watched, it seized the cloth in its mouth so as to obtain a purchase, and struck out manfully with its fore-paws. My overcoat was made of black, finely-ribbed cloth, so that the scrape, scrape, scrape of its claws was not only seen but heard. It seemed surprised at its inability to force an entrance. After watching these manœuvres I put the animal on the footpath, but it seemed dazed and helpless, trying to force its way beneath the tufts of grass in a half-hearted sort of way. I then lifted it up and placed it on softer ground amongst some fallen oak leaves, and in a very few seconds it was gone. I believe the animal uses its teeth to aid it when burrowing amongst grass and roots whenever it gets into a "tight place," but especially when it wants to re-enter the ground after a daylight walk.

Kings Lynn, CHARLES B. PLOWRIGHT, M.D.
December 1, 1901.

Metamorphosis of the Frog.—In order to have under observation the complete process of metamorphosis of the frog, about the middle of April last I collected from a neighbouring pond a handful of spawn containing probably from 150 to 200 little dark specks, which in the ordinary course of nature should eventually have become as many fully-developed frogs; but, as the sequel will show, such was very far from being the case. In about a week the little dark specks began to emerge from the mass of jelly in the shape of very diminutive tadpoles, and in about another fortnight the whole mass of jelly had disappeared and I possessed a small colony of those strange little creatures. These slowly increased in size and also apparently decreased in numbers, and yet strange to say, I never saw a dead one: whether they died and dissolved in the water, or whether they were possessed of cannibalistic tendencies and the stronger ate up the weaker, I do not know, certainly I never saw the latter performance take place. Towards the end of June the number had considerably decreased, and for the past month had changed very little, whereas from the same mass of spawn at the pond the tadpoles were much more advanced, many of them even able to boast of a pair of legs. Towards the end of July my stock was reduced to about three or four dozen, and all still in the tadpole stage, whereas their numerous little brothers and sisters, to the number of hundreds of thousands, at the pond had not only developed first two legs, then four, and then got rid of their caudal appendages, but being fully equipped for a new state of existence were leaving their watery home in huge numbers and jumping about in all directions. Towards the end of August some of my tadpoles had arrived at the two legged-stage, while the rest were still legless; whereas with their near relations at the pond the transformation and migration was so complete that not a frog was to be seen in any direction out of the enormous numbers that were there so short a time before. To carry the experiment a little farther I kept the remains of my tadpole family still another month, when it then consisted of one only with four legs, but still with the tail, four with two legs, and two still legless. So out of the whole lot not one had developed into a perfect frog. Although my experiment did not terminate as I expected, it was nevertheless interesting. I might mention that I kept them in rain water frequently changed.

Buckhurst Hill, JOHN HORNE.
December 6, 1901.

[Mr. Horne, I fear, starved his tadpoles into cannibalism and retarded development. His experiment might serve to illustrate Lombroso's theory of criminology.—ED. *N.N.*]

Lizards in Ireland.—In answer to your correspondent, I should like to state that the common lizard (*Lacerta vivipara*) is found in all parts of Ireland, although not common anywhere. In this neighbourhood, North County Dublin, I have frequently seen the green variety on the sandhills, and a friend tells me he

has seen the brown variety frequenting hedges in Wicklow. Perhaps Charles Darwin intended a playful allusion to St. Patrick's famous banishment of reptiles from this country.

Malahide. A. L. MASSY.

The Kingfisher.—In *Country Life* for November 16, E. K. R. says: "As the weather gets colder the small fish on which the kingfisher feeds withdraw from the ditches and shallows, and the kingfisher is obliged to seek the main stream, and each day he works nearer to its mouth. Sometimes his movements are hurried by frost, which closes the upper waters first; but sooner or later almost all the kingfishers of a river will, in hard weather, be found collected near its mouth, where food is still to be found in the unfrozen brackish water. It is then, alas, that the millinery trade is easily supplied with kingfishers' skins, for the birds have a fatal habit of flying under a bridge instead of over it, and nothing is easier than to cover the archway with a fine silk net and then drive all the kingfishers up stream towards it. The facility of this wholesale slaughter, combined with the bird's great beauty, ought to place the kingfisher in the category of British birds that deserve to be protected by severe penalties at all seasons of the year everywhere."

Jackdaw.—This morning I saw a jackdaw fly over a wall from a private house as if it were a tame one. I wondered if it were a pet, as it flew back again. On returning, however, I saw it in the same road. It seemed quite tame and let me come close to it, then I noticed it trying to feed on something on the ground, and saw the shape of its bill, which was crossed at the tips with a space between the mandible at the base and middle so that it could not get hold of its food. The bird was evidently starved. Now I want to know how it could have lived from May to December, through two periods of severe weather, and how this formation of the bill came about. It is suggested to me that the bill was strained in eating something hard when it was young.

Moorcroft, Hillingdon, Middlesex. C. J. MAURICE.
December 2, 1901.

The Song of Birds.—It is generally thought that the song of birds is the language of love and defiance, and is connected with sexual passion. How is it then that the wren and the robin sing all the year through? They charm us when the songsters of the sun are dumb. Perhaps some one will express his opinions on the subject.

Moorcroft, Hillingdon, Middlesex. C. J. MAURICE.
December 2, 1901.

A Black and White Blackbird.—We have a tame hen blackbird with a white throat that is constantly on our lawn. For three winters she has come to the window to be fed. One winter when there was snow upon the ground she came into the house several times through the open window. She always builds in some ivy on a wall in the garden; but we see very little of her until the weather becomes cold, then she always seems at hand. This autumn I noticed she had a white feather come in her wing and some white feathers above her eyes. She is very spiteful to other birds, and will not allow them to come too near the windows, but chases them off in every direction. We often put down bread for her; it is most funny to see how she guards it. After eating as much as she can she sits near hopping backwards and forwards constantly and making darts at any other birds that venture near.

There is a large Portugal laurel on the lawn, only a few yards from the window, which is generally covered in the autumn with berries; and the blackbirds seem to devour them with great eagerness. Two years ago was noticed a beautiful hawfinch close to this tree, we saw him two days in the same week nearly in the same spot. We saw one again last week under this Portugal laurel. No one seems to have seen one in the immediate neighbourhood besides ourselves.

PARNELL JONES.

Owls at Mortlake.—Some time ago several old trees growing by the path in Kew meadows, Mortlake, were felled. During the process of cutting down these trees, a large white owl came out of one of them, and flew away over Mortlake Road, towards Sheen. In this tree were found afterwards, bones of pigeons, remains of mice, &c. A few days ago I mentioned the matter of the

owl to a market gardener who cultivates one of the largest gardens about Mortlake, and he told me that some of his men brought to him a short time since a beautiful owl they had caught in a hole in the trunk of a tree growing near to his house. He kept the bird till night and then let it free. He said he often heard the hoot of owls at night.

Kew, December 5, 1901. INA MELLOR.

Wasps and Bees.—If a "Rugby Selbornian" will closely observe a wasp attacking a blue-bottle fly he will find that although the wasp curls its abdomen round as though in the act of stinging, it rarely inserts the sting into the fly. I am only alluding to *Vespa vulgaris*. Wasps, as a rule, kill flies by simply cutting them to pieces; that is, when the fly is too large for them to carry. They first, as a rule, chop off the wings, and then the other parts of the body. If E. T. Daubeny will take a wasp in one hand, between finger and thumb, and a blue-bottle fly in the other, and bring them together, thus making the wasp actually sting the fly, the latter's death will be almost instantaneous.

I must negative Mr. E. T. Daubeny's remarks *re* bees killing drones of *Apis mellifica* by stinging them. The pose of the worker bee when getting rid of the drones is exactly that of the wasp when seizing a fly, and would lead a casual observer to suppose that the sting was inserted: this is not so. The drones are simply turned out of the hive by the worker bees to die of starvation and exposure: they are very delicate and cannot stand exposure or scarcity of food. One will frequently find, at evening during early autumn, the drones in masses on the floor board of the hive, they having been driven from off the combs by the workers and left there to starve during the night. The next day they are dragged forth in a half-dead condition and thrown outside to finish them. Drones are common to all hives, and we shall find in an apiary, if there is a queenless stock, this latter particular colony full of drones which have been refused admission or have been thrown out, providing they are not too far gone to fly, from the other hives. If the bees killed these drones by stinging we should, of course, not find them in the queenless colony: this latter description of colony is always willing to accept drones. Again, I must quote the old bee-man's adage, "bees do nothing invariably." I am only stating the rule. W. B. WEBSTER.

Binfield, Berks. (Author of the "Book of Beekeeping," &c.)

Wasps.—I secured this summer, near the waterfall at Llanberis, a fine specimen nest of *Vespa norvegiea*. I had just observed a dragon-fly settle on some foliage near, with a good-sized fly in its mouth, and was able to walk right up to it, so seriously occupied was it over its meal, which took a good minute to dispose of, its jaws working all the time like a stone-crusher until the last of the poor fly vanished; then in a moment, as if it became suddenly conscious of my presence, darted off. As soon as my attention was diverted I found I was close up to the wasp's nest, and though so close it was only the shape that caught my eye; the colour harmonised exactly with the slate-rock which formed the background. As I had been looking out for such a prize for years I determined to secure it, which I was able to do without a sting, though I had to cut it right out of a bramble bush. I got it down to the hotel and home and mounted without mishap. I found just at the same time, in the greenhouse, the nest of the solitary wasp, and I have the two together in the same case, a perfect contrast as to size and colour. Mr. Daubeny must allow one to differ with him when he says, as he does on page 231, under Wasps, "The honey bee kills off the drones by stinging them." My experience is that bees are much more careful about using their stings than he evidently thinks. All they do to the poor unfortunate drone is to hustle him.

Dyserth Road, Rhyl. F. L. RAWLINS.

The Winter Moths.—These little creatures appear to be unusually plentiful this winter on all mild evenings, as they cannot travel in frosty nights, and consequently are not on the trees. If this is general it will cause much damage on fruit trees next spring and summer, as each female is capable of producing 150 to 200 caterpillars. I have preserved a few hundreds of females in glass jars in which they have laid thousands of tiny green eggs which will gradually turn brown and remain so through the winter until April, when they hatch into caterpillars just in time for the summer migratory birds on their arrival in our orchards and gardens.

Astwood Bank. J. HIAM.

Clothes Moth.—There are several kinds of very small moths that are deservedly looked upon as domestic pets, but of them all the well-known clothes moth (*Tinia tapetzella*) is far the worst. Among our carpets and wardrobes it is a nuisance, and is out of place; but in its place it is one of the most useful and necessary of all minute creatures. To it is allotted a vast and important mission in life, which it performs most efficiently. Hair of all kinds, whether in the form that grows on our heads, or on the bodies of horses, sheep and other mammals, or as feathers in the case of birds, is almost indestructible. It resists the ravages of time and weather, and passes almost unchanged through the digestive organs of bird and beast alike, as an examination of the excreta of flesh-eating animals, or the pellets thrown up by owls is sure to prove. Were it not for the clothes moth, our hedges, and under almost everything, would be covered and ruined by cast off masses of wool, hair and feathers, all or nearly all of which it clears away. Its larva is to be found everywhere, in the rich man's carpet, in the poultry yard, and in the horsehair lining of a magpie's nest on the top of the lonely tree. This tiny insect is one of Nature's nightly scavengers.

Market Weston, Thetford. EDMUND THOMAS DAUBENY.

The Convolvulus Hawk-Moth.—This moth has been more abundant here, too, this summer than in previous years, according to the information of my local friends who study Lepidoptera. Has the exceedingly low rainfall of last summer been favourable to their increase? I had a specimen brought to me alive and was somewhat astonished at the length of its bifarious proboscis, which it curled up like a watch-spring, and placed out of sight. After the moth was dead I unwound the proboscis and carefully measured it, and found it was 3½ inches long, while the moth's body was only 2 inches long.

St. Helen's, near Hastings. WALTER FIELD.
December 9, 1901.

Humming-Bird Hawk-Moth.—On October 1, last, I saw one of the above-mentioned species flying at some ivy. Is it not rather late? Also on November 27, I saw a small tortoise-shell butterfly, and a small moth, whose species I do not know, fluttering in a room. They had evidently hybernated and had been awakened by the heat of the room.

December 1, 1901. A RUGBY SELBORNIAN.

A Spider at Work.—I was sitting last month, reading by the fire, when suddenly looking up, my attention was attracted by a tiny spider, that seemed busily engaged in letting itself up and down from the mantelpiece. I put my book down and began watching the active little creature. It had made a line of silk along the top of the mantelpiece, and from this had let itself down for about a foot and was swinging in mid-air. After watching carefully, I found it was most busy. It appeared to be knitting its silk into tiny balls with its third pair of legs. It did not seem to use the others at all; but this pair went so fast, I could hardly see them. In a few seconds it had finished a tiny ball, hardly the size of a pin's head. This it carried up its lader and fastened it on to the line of silk on the mantelpiece. As soon as it had done this it let itself down again and waited a few minutes, as if to rest, then it began knitting another little ball, and so it went on. What could it have been doing?

PARNELL JONES.

SELBORNE SOCIETY NOTICES.

Council Meetings.—In the hope of getting a better attendance at the meetings of the Council, it has been decided that they shall be held monthly—on the third Tuesday. The notice therefore in the December number calling a meeting for January 7 is cancelled. Should any business of importance occur in the interval the Secretary will convene a special meeting as hitherto.

New Members.—S. E. Evans, Esq., Doncaster; C. R. Bailey, Esq., Hunter Street, W.C.; John Horne, Esq., Buckhurst Hill; Louis Ames, Esq., Long Horsley; Ed. W. Winterbotham, Esq., M.A., J.P., Stroud; Evans Jones, Esq., Newbury; T. L. Ashby, Esq., St. Leonards.

Donations and Subscriptions.—The Council begs to acknowledge with thanks the receipt of the following donation: Countess von Arnim, 20s.;

and the following subscriptions over 5s.: Louis Ames, Esq., 10s.; Wm. Whitwell, Esq., 21s.

NEWS FROM THE BRANCHES.

Croydon and Norwood.—The monthly meeting of the Branch was held at North Park Ladies' College, by kind permission of Miss H. K. Sturton, when Mr. N. F. Roberts, F.G.S., lectured on "Our Palæolithic and Neolithic ancestors, and the tools they used." Remains of human handiwork had been found in the valleys of the Thames and its tributaries, of which the local Wandle Valley was one. Some three or four gravel terraces of the ancient Wandle were traceable, its valley extending from Sutton to Thornton Heath, where the uppermost terrace had recently yielded fossil elephant and horse bones and tusks. Man was represented by his flint implements, but these are rare locally, and none have yet been found in the Thornton Heath cutting. The stone implements were a hundred and fifty years ago described as thunderbolts. The manufacture of flint into gun-flints is still carried an to a slight extent at Brandon, in Suffolk, and no doubt even when bronze and iron were being used by our ancestors of two or three thousand years ago, there were still those who continued to use flint implements. Even Croham Hurst had yielded specimens of man's tools, although how they came there is a mystery. Possibly they were dropped there before the level of the country around had been lowered. Some very rude "eoliths," or early palæolithic stones, had been found by Mr. Robarts, at Worms Heath, and elsewhere, which must have been brought there by river-action, when the upraised Weald was pouring away its substance through the gaps formed by the denuding torrents. A number of implements were shown by the lecturer in explanation of his remarks, and an exhibition was given by means of the lantern. Mr. Robarts was, in conclusion, heartily thanked for his lecture, on the proposition of Miss Sturton, seconded by Mr. Harding.

Market Weighton.—Under the auspices of the Branch a course of five lectures on British Birds, has been delivered by Mr. C. F. Archibald, of the Yorkshire College, Leeds. The attendance has been remarkably good, averaging about 110. A prize has been offered by the Rev. Gwyn L. M. Rees, Vicar, for the best essay written on the lectures, by the boys of the National School.

Selborne Saturday Afternoons:—

January 11.—Visit to St. Saviour's Collegiate Church, Southwark. The church is close to London Bridge Station. Assemble at the South Transept door at 2.15. The Rev. Canon Rhodes Bristow has kindly promised to conduct the party.

January 25.—Natural History Museum, Cromwell Road, S.W., Department of Geology. Assemble at 2.15 p.m. Dr. A. Smith Woodward, F.R.S., Keeper of the Department, has kindly promised to give a demonstration on Fossil Reptiles.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., Richmond, S.W.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

No. 146. FEBRUARY, 1902. Vol. XIII.

SELBORNIANA.

The Richmond View.—The general press—ignorant perhaps of the locality—seem scarcely to have realised that the announcement which has just been made that the Petersham Lodge Estate has been secured from any fear of building is of even greater importance, so far as the view from Richmond Terrace is concerned, than the—we hope assured—acquisition of Marble Hill itself. This new assurance we owe to the taste of Mr. Max Waechter. At the same time the Richmond Corporation have the opportunity, owing to Sir J. Whittaker Ellis's intended retirement to the Isle of Wight, of acquiring Buccleuch House, and thus, if they choose, of extending their public gardens to the river's edge and of restoring an uninterrupted riverside path to Kingston.

Rural Scenery.—We have received the following letter from Miss Brinkley, with which, we need hardly say, we most heartily sympathise, although, where landowners are absentees who do not trouble themselves in the matter, we can see no remedy for what is merely want of taste on the part of their tenants but the laborious attempt to educate the said tenants:—

"As a Selbornian and a profound lover of Nature, I write to ask if nothing can be done to protect the rural scenery of England. Our village lanes are disfigured by the cutting of the boughs of the trees in the hedges, it is said by order of the District Council. But by far greater enemies to scenery (at least in the Somersetshire village in which I live) are the farmers who cut and mutilate the trees all over the fields. The fact that the District Council once a year orders them to trim up all the trees by the road sides would seem to give them a free hand to spoil all the trees on their farms in a similar way; and not only that, but they depute this business to their farm man or carter, an ignorant villager who cuts away at the trees in a ruthless manner. I was the means of saving the limbs of a fine old elm in view of my house. I spoke to the man who was about to cut them. He said his master had gone to market and had left him to do it. I asked him to

wait until I saw his master upon the matter, which I did, with the result that the boughs were saved. The owners of the two different properties on which these farms are situated are both ladies living in other parts of England, who, doubtless, are ignorant of, or indifferent to, the matter. Can any Selbornian suggest a remedy?"

A Pathetic Appeal.—The pupils of the School for the Blind at Woluwe St. Lambert, have appealed to the Belgian Chamber of Representatives and the Senate to interdict by law the barbarous custom of blinding finches and linnets to make them sing better. The request, which is couched in touching terms, describing the horrors of blindness as experienced by the petitioners themselves, is written with the writing system for the blind, in relief type.—*Daily Mail.*

A Garden of Wild Flowers.—In view of the interest which the Selborne Society has always taken in the work of M. Correvon, at Geneva, and the attention which it is now paying to the question of protecting our own English flora, considerable importance will undoubtedly be attached to the following letter which we have received from Mr. Philip Cochrane, of 13, Marlowe Road, Anerley, S.E. There may be a difference of opinion as to the practice of attempting to re-introduce what are presumed to be the same species of plants into districts in which they are supposed to have become extinct; but there is none as to the preferability of the proposed system of cultivating rare species to that collecting which endangers their existence. From photographs Mr. Cochrane sends us, the little garden he has created appears certainly well worth a visit a little later in the year.

"No doubt many members of the Selborne Society will be surprised and perhaps delighted to hear that a garden for wild plants, with any pretensions as regards completeness, exists. I have not heard of one where more than a few of these are grown, nor of any other devoted to them exclusively. I think such a garden supplies a real want, as such of these plants as are uncommon or rare are likely in time to become much more so, or even extinct, as far as the British Islands are concerned. A collection of these where seeds may be saved and plants raised for distribution to localities where they have been known to flourish but are now becoming scarce, seems to me very desirable, so that our rich native flora shall suffer no diminution as regards number of species. And further, if their requirements can be met, rare plants, which would require a long journey to obtain, may here be seen and specimens procured, as well as the names of the commoner species accurately ascertained.

This garden can be reached from London by the Catford or Catford Bridge stations of the S. E. and C. Railway, thence by omnibus (or about fifteen minutes' walk) to Castlands Road, Perry Hill, in which it is situated. I commenced laying it out in March, 1899, and have prepared suitable habitats by forming pools, rockeries and rooteries; a peat and a clay fresh-water marsh; a sand and a clay salt marsh; peat, chalk, and sand mounds; beds and borders; rustic arches, &c. It now contains about 700 species, labelled first with their English name, then the Latin name, and the Natural Order, thus affording a source of instruction and recreation to all who can avail themselves of it.

"But this collection cannot be completed and maintained without the assistance of a certain number of subscribers of a small sum, namely, 5s. annually. In response to an appeal which has lately been made for 100 annual subscribers, 73 subscriptions of 5s. have been sent or promised, and the remainder are urgently

needed to ensure the success of the project, and to prevent all the money and labour I have spent upon it from being wasted. The above-named subscriptions (amounting to £25) are only sufficient for necessary expenses. My own time has been and will continue to be freely given. I shall usually be at the garden on week-days from 2 p.m. till dusk, and from 3 p.m. on Sundays, and will give subscribers all information they may require. They can be supplied with a key (at a cost of 6d.), so that admission may be obtained at any time for themselves and friends. Students of botany can be supplied with specimens at 6d. a dozen. Any subscriptions which may be sent to me will be thankfully acknowledged."

ENEMIES OF TROUT.

SOME remarks in NATURE NOTES for August, by the reviewer of "Amateur Fish Culture," referring to an article of mine written two or three years ago, induce me to enlarge a little on what I said in "A Pet Troutery" about the enemies of trout, especially in the early stages of their existence.

It is generally the case when the foes of fish are described that those most in evidence are placed first and foremost; and that condemnation is meted out to them in proportion to their size.

I will, however, reverse the order, because I have learned to believe the rule to be this: that *the trout's enemy is formidable in inverse proportion to that enemy's size.*

I have had great facilities for watching the ways and habits of trout, more so than can be obtained from living close to a stream. For nineteen years I possessed an ideal piece of water for making observations, that ran through my garden, and consisted of two moats connected by a small waterfall, above which was slowly running water forty yards long, separated by iron grating from the stream outside. The spring which fed the stream rose 200 yards off, and the water was so beautifully pure and clear, that when hidden by a laurel bush, I have often watched my trout spawning a few feet off, and have been enabled to see every action as if it were air and not water which surrounded them. I have at times taken their ova from the bed of the stream and reared it in boxes; but it is a difficult matter and not worth the trouble to go this way to work. A considerable number of ova (*pace* Kingsley) appear to escape fertilisation when Nature keeps to its own methods; whereas, by spawning the fish oneself the fertility of about 98 per cent. can be insured.

The worst of all the foes that attacked my little trout were leeches. And of leeches there are many kinds, from the well-known horseleech, some two inches long, down to little black ones a third of an inch in length, which, when not extended, are like a blot of ink, and not much larger than the head of a good-sized pin.

These little leeches, then, I will mention first, because they

proved the most insidious and formidable foes to infant trout I ever had to fight. In many streams they escape notice, and are not so numerous in some as in others. They flourish to the greatest extent in those waters which, like my moats, do not freeze even in the severest weather, owing to their proximity to the spring. To give an idea of their numbers, I once placed a piece of fresh meat in a saucer in the lower moat, and on removing it two or three hours later secured 1,200 leeches. As sediment is fatal to trout ova I filtered the water for my breeding boxes by passing it through sand; but in spite of all my care the leeches got into them on one occasion, and cleared off a thousand fry that were newly hatched. Half-a-dozen of these small leeches were placed as an experiment in a saucer with three or four fry fresh from the egg. These were attacked at once, nothing being left but empty skins. The leeches, however, could make no impression upon some ova in the saucer, owing to the toughness of the envelope.

As soon as the umbilical sac was absorbed, I turned my troutlets into a very small artificial pond by themselves. Here numbers were attacked by a leech of another kind, which was of a light green colour with dark rings, and had a powerful sucker at one extremity. These leeches, which are commonly to be seen on the head and eyes of adult fish, are of the same size and not unlike the so-called "worm" that causes the "gapes" in young pheasants by adhering to the larynx. These leeches fix upon the gills of the little fish, causing them to bleed. I have placed the fish, when thus attacked, in a bowl of water, and have removed the leech; but in no case could I save their lives.

There are many other enemies, almost as intangible and mischievous as leeches, which are to be met with in countless numbers in every piece of water the country through.

"Whirligig" beetles, which amuse us by their antics in some quiet corner of stream or pond in early spring, are not only savage in their attacks on other creatures, but their larvæ are also carnivorous. The same may be said of the "Water-boatman," whose proboscis has inflicted a stab on many an unwary finger. "Water scorpions," both as larvæ and as perfect insects, lie in ambush in the mud "seeking whom they may devour." Indeed, as a class, aquatic Heteroptera, to which group water-boatmen and water scorpions belong, are enemies to any form of life they are strong enough to master.

Water-beetles are numerous and ubiquitous. Their larvæ, like the perfect insect, are in almost all cases carnivorous, feeding upon "flesh, either living or dead," and are provided with terrible weapons to secure their prey. Of them it is said that "their jaws are formed after a curious fashion, being perforated throughout their length, as the poison-fangs of a serpent, so as to serve not only to capture and retain their prey, but also as a medium through which the juices can be sucked into the mouth.

. . No sooner does an insect or other small creature appear

in the neighbourhood of its hiding place, than the larva slowly moves forth, glides beneath the body of its intended victim, and seldom fails to make a fatal stroke."

The great water-beetle (*Dyticus marginalis*) is a type of this group, and inhabits most of our waters. It is one of the largest British water-beetles, measuring an inch and a quarter in length, and is bulky in proportion. It is of a deep olive-green with a band of dull orange round the thorax and wing cases. On the head there is a V-shaped mark of a reddish colour, with two spots of like hue between the eyes. This Dyticus lives longer than most insects, and has been kept in captivity for three and a half years.[1]

TROUT.

Another very common water-beetle, known as *Acilius sulcatus*, is of sufficient size and power to prove a deadly assailant of any small fish. This and the Dyticus are often sold as specimens for the aquarium.

To the list of insect foes may be added the armies of dragon-flies, whose savage larvæ are to be found in water almost everywhere. The weapons of these larvæ are if possible more formidable than those of water-beetles; and their powers of locomotion are greater, for they dart rapidly from place to place by ejecting water from tanks within their bodies for this purpose, and are strong enough to attack not only the delicate and helpless new-born fry, but even fish much more advanced in power and size.

Among fish, stickle-backs may be named as injurious to trout

[1] *Dyticus* is usually spelt *Dytiscus*, which is a mistake.

in early life. These little sharks attack and devour every living thing they find small enough, and consume not only quantities of ova, but also much food the trout would eat. "Millers' thumbs" with their capacious mouths, which lurk among the pebbles where small trout live, are sad culprits. Eels, too, are to be added to the black list, as well as many other fish whose ways are too well known to need words from me.

It is gratifying to know that pike are kept in check by such feeble creatures as tadpoles, which eat great quantities of their spawn. As the spawn of frogs and toads can easily be conveyed to places where pike breed, this habit of the tadpole may be turned to useful purpose.

Trout are cannibals, and it is a moot question whether in some waters large trout should not be systematically destroyed. Many Dartmoor fishermen are in favour of killing them. They say that fish in their streams of 1 lb. to 2 lbs. weight are hardly ever caught by ordinary means, and live entirely on their own brethren. A 2-lb. Devon trout is probably responsible for the death of several stone's weight of his own kind. I have no strong opinion on this matter, and merely state what has been said to me by those who ought to know.

Of birds, that delightful diving thrush, the dipper, is sometimes thought to be harmful. This I cannot second. His presence on a trout stream is for good and not for ill. The dipper's food consists of those insects and their larvæ, which I have just denounced. If anyone will take the trouble to examine their droppings on a mid-stream stone he will find they contain the remains of aquatic Coleoptera, Heteroptera and their larvæ, and such-like, but no traces of those of fish. Who ever saw a dipper emerge from a brook with a fish wriggling in his bill? I most certainly have not.

The kingfisher we know feeds on fish, and yet even in company with trout a word may be said in his favour. I speak not of his beauty or the charm of his presence. Where does he fish? Not in the shallow ripples where the little trout lie safe among the pebbles, but in the more quiet and deep water, where are to be found stickle-backs and coarse fish fry, of which he takes frequent toll, and whose ranks he thins. The law does well in throwing protection round the kingfisher.

It is quite impossible to shut one's eyes to the havoc herons cause among trout. They are impartial in pursuit of prey. Be it water-rat, frog, eel, or any other fish up to a pound's weight, let it but come within striking distance and it is sure to be seized. I have seen too many trout that have been stabbed by his fatal bill not to know the truth. And yet who would wish to exterminate the heron? Who has not associated him with his day's fishing, and would not be loth to miss him from his familiar haunts? I will be candid enough to confess that on some streams, though on by no means all, I have met rather too many of this fine bird.

If in saying this out of love for the trout I be thought the heron's lukewarm friend, allow me to redeem my character by pleading for the otter. We know he feeds on fish, varying his diet with frogs, water-rats, and a bird or two once now and then. But of all fish he prefers an eel, for which he will give up the best fresh-run salmon; and eels are by no means friends to trout, as everybody knows. There is, however, one special service for which the otter does not obtain as much credit as he deserves, and that is, he drives the salmon from the river to the sea to recuperate after spawning. It is quite possible to conceive that if Nature were not to insist on her rules being carried out many creatures would gradually become too lazy to do her will, and would be in danger of extinction. Nature ordains that the salmon should live in the sea, and also in order to deposit its spawn, should resort to fresh-water rivers. By way of enforcing this rule, at certain times of the year salmon are attacked by a sea louse, which so worries them that they are glad to go into fresh water, which rids them of their tormentors. There, after the exhausting process of spawning, they settle down indolently in some quiet pool, decline in health and condition, and many die of disease. If left undisturbed they run the danger of being too enfeebled to regain the sea. But if an otter hustles them about in their retreat, and drives them through the pool, is there not a better chance of their being roused ere too late to make the effort to return to salt water?

The pine marten has been well-nigh exterminated, and his natural prey, squirrels, play havoc with our plantations and little birds. Let us take care that our salmon rivers do not suffer by undue persecution of the otter.

Market Weston, Thetford, August, 1901. EDMUND THOS. DAUBENY.

REVIEWS AND EXCHANGES.

Forstbotanisches Merkbuch. I. Provinz Westpreussen. Edited by Prof. Conwentz. Berlin: Messrs. Borntraeger Brothers, 1900.

This is a Government publication, and apparently a first experiment. It runs only to 94 small pages, and bears no indication as to its price. But, though it is largely a dry topographical catalogue, anyone who knows the extensive, drearily-monotonous pure forests of Prussia, models of scientific forestry as they are, will welcome it; for here we have the official list of the interesting trees of all species, interesting for rarity, size, malformation, or what not, which have been marked for careful preservation. Some twenty excellent process-blocks illustrate fine specimens of pine, oak, juniper, spruce, &c.

Birds and Man. By W. H. Hudson, F.Z.S. Messrs. Longmans. Price 6s. net.

We will frankly confess that we have read much of this book, which is almost

exclusively ornithological, with less pleasure than any previous works of its author. We do not share his views of the uselessness of the best collections of stuffed birds, and we cannot for a moment accept his theory that the charm of flowers is at all largely dependent upon human associations, such as blue eyes, flesh tints, &c. We were beginning to wish that Mr. Hudson were gaining fresh inspiration on the Pampas of the Argentine when we reached his three concluding chapters, and immediately forgave him much that had bored us in the first eleven. Here we have, *apropos* more especially of the Dartford Warbler, a plainly but cogently reasoned argument that the only way to protect our vanishing avifauna is to prohibit by law the collecting of British birds by private persons. And then, after one of those charming sketches of birds in London with which his previous volumes have familiarised us, comes a paper on Selborne for which alone we should have been sorry to have missed the book, for here we have a simple explanation, yet one that permits not a moment's doubt, of the much-debated vitality of Gilbert White's work. What this explanation is we must refer the reader to Mr. Hudson's book to discover.

Beautiful Birds. By Edmund Selous. With illustrations by Hubert D. Astley. Messrs. Dent and Co. Price 4s. 6d. net.

Mr. Selous has proved before this that he can write for children, and that his heart is filled with truly Selbornian love for wild animals. He has written in this book a pleasant description for children's own reading of the most beautiful birds in the world, especially birds of paradise, humming-birds, and white egrets, and Mr. Astley has illustrated the volume with a series of drawings that are —according to our taste—far too hard. But the book is one long conspiracy of rescue: it is an appeal to the children to help. These concluding words sum up the whole:—

"There are not going to be frozen-hearted women in the world any more now, because their little children will soon have thawed all their hearts. . . . So now ask your dear, dear mother to make just one more promise. . . . Just go to her and throw your arms round her neck, and whisper: 'Mother, promise not to wear *any* feathers except the beautiful ostrich feathers that you look so *lovely* in.' As soon as she has promised, then all the beautiful birds in the world (and that means all the birds, for all birds are beautiful) will be saved, and it is you and other little children who will have saved them. So, of course, you must keep on saying 'Promise,' till she does."

Obviously this is a book to be sown broadcast through our junior branches and Bands of Mercy.

A Text-book of Zoology. By G. P. Mudge, A.R.C.Sc. Edward Arnold. Price 7s. 6d.

Many and diverse are the directions from which we can approach the study of the animal world. To the Selbornian the outdoor study of the living animal and its habits appeals most directly, whilst those who have access to large public collections may be attracted by the minute serial variations that form the basis of systematic zoology. No one, however, can be a zoologist without some knowledge of anatomy, and it is mainly from the standpoint of comparative anatomy that Mr. Mudge approaches his subject. Much of the book is occupied with a detailed comparison of all the organs of the dog-fish, frog and rabbit, with a chapter on the lancelet, and a similar comparison of the crayfish, cockroach, fresh-water mussel and earthworm, with chapters on *Hydra*, *Paramæcium* and *Amœba*. There are, however, a brief but excellent Introduction on "the scope of biology," and some admirable summaries of the latest phases of our knowledge of karyokinesis, embryology, heredity and variation, the latter being stated with strict impartiality towards conflicting theories. We hope some day to see these chapters form the basis of an independent volume. Though thus obviously based on the type system and designed primarily for the examination candidate, the work would form a very good introduction to the studies of any serious student of animal life. Mr. Mudge is to be trusted, as evidently thoroughly acquainted with his subject, and his exposition, though necessarily brief and technical, is

perfectly lucid. The volume is illustrated by two coloured diagrams of circulatory systems, and by a hundred other anatomical drawings, and it has a sufficient index. In any subsequent edition, however, we would suggest that a glossary of terms might well be added.

CATERPILLAR OF PRIVET HAWK MOTH.

Photography for Naturalists. By Douglas English. Iliffe and Sons. Price 5s.

This is essentially a practical handbook, dealing with the apparatus and procedure in photographing animals of all kinds under control, as distinguished from

the stalking photography rendered familiar by the works of Mr. Kearton, Mr. Pike and others. The book is illustrated by some fine specimens of the author's results, some of which we are able, by the courtesy of the publishers, to reproduce, and by some beautiful landscape views by Mr. Charles Job. Paper, printing and binding combine to make a handsome volume.

RED DEER.

The International Annual of Anthony's Photographic Bulletin and American Process Year Book: Vol. xiv. for 1902. Edited by W. J. Scandlin. Messrs. Iliffe and Sons. Price 2s.

Though largely a vehicle for advertising Messrs. Anthony's photographic apparatus, this handsome volume of over 350 pp. is full of practical suggestions and recipes, while the innumerable illustrations mark the present high-water mark of photo-printing. Many of them are exquisite works of art; the "Dinner-party at Senator Hanna's," with portraits of President and Mrs. McKinley, is a wonderful achievement, and many of the views and landscapes are of English and continental localities. Anybody interested in any branch of photography would be glad to look through this book.

Pleasures of the Telescope. By Garrett P. Serviss. London: Hirschfeld Brothers. Price 6s. net.

This volume, made up in the main of articles reprinted from the *Popular Science Monthly*, is practically a sequel to the author's *Astronomy with an Opera Glass*. It is, however, quite intelligible to the beginner. The opening of Chapter II.: "Let us imagine ourselves the happy possessors of three properly mounted telescopes of five, four, and three inches aperture respectively"—is, perhaps, rather alarmingly discouraging; but the fact that the volume contains twenty-six star-maps and four charts of the moon, shows that it is thoroughly practical and by no means dear.

The Humane Review, January, 1902. Ernest Bell. Price 1s.

Our excellently produced quarterly contemporary maintains its high level. Mr. Selous leads off with an article on "A scheme to save specific life," and there

are also articles on Robert Buchanan, Shelley, the rights of animals, flogging, &c., besides reviews and correspondence.

Some Notes on the Flora of Hampstead. By James E. Whiting. Reprinted from the Hampstead Annual for 1901.

This is an agreeably written paper, enumerating under their English names the chief flowering plants of the district. As Hampstead happens to be the district to which the very earliest English florula refers, we hope that the author will give us another year the history of the losses of this suburban home of wild plants.

Journal of the Kew Guild. 1901. No. ix. Messrs. Taylor and Francis.

Glad as we are to see so good a number of this private journal, it has a decidedly melancholy interest. The capital portrait of Mr. George Nicholson that forms the frontispiece reminds us that ill-health has removed his genial presence from Kew, whilst those of our old friend Mr. Thomas Meehan of Philadelphia, and of George Bean, who at thirty fell a victim to dysentery in South Africa, tell of other gaps in the world of horticulture.

Received :—*Science Gossip*, *The Naturalist*, *The Irish Naturalist*, *The Naturalist's Journal*, *The Animals' Friend*, *Our Animal Friends*, *The Animal World*, and *Humanity* for January.

NATURAL HISTORY NOTES AND QUERIES.

Avalanches.—After I had written what appears at pages 212 and 213 in NATURE NOTES for November, I read in one of the local papers here a similar remark about the trees above the large avalanche not being damaged. When visiting the place I was unable to go and find out the reason of this, for I had a lady with me who was unequal to the climb which that would involve. However, yesterday I paid another visit to the *vallée de la Tinière*, and found, as I expected, after looking in the map, that in front of the trees the bed of the stream over which the avalanche lay took a sharp turn to the left in a deep, narrow gorge, like a V. On questioning some woodcutters, I was informed that this avalanche descends most years, and this year was exceptionally large. Where a cutting was made near the lower end to get the roadway clear, the thickness of snow was 4 metres, = over 12 feet, and in the narrow V-shaped gorge I estimate it must have been 50 or 60 feet deep. The snow took this year several months to entirely melt, the sun's rays being kept off by the nature of the ground and surrounding pine forest. The avalanche is formed by the wind driving the snow over the high mountain ridge behind. A wall is now being built at an altitude of 6,000 feet to try and stop this. Truly the Swiss are an industrious and persevering people ; their rugged country is well calculated to develop the powers of their engineers, and the nature of their corkscrew railway-tunnels can be guessed at by looking at the maps in Baedecker's Handbook.

Montreux, *November* 12, 1901. GILES A. DAUBENY.

Notes from Brittany.—I have twice seen in the garden here, on a stone terrace, a lizard carrying an egg in its mouth. Can you tell me whether it does this in order to find a suitable place to leave it in to hatch ? On another occasion the gardener found a collection of six lizard's eggs in the earth where he was digging up potatoes.

On the 7th inst. I distinctly heard the cuckoo in the early morning, uttering its usual call, instead of the double one, "cuck-cuckoo."

During the late muzzling order here, our dog was very much vexed at having to wear a muzzle, and one day when I was going to take him for a walk the muzzle was nowhere to be found, till after a long search we found he had hidden it in a corner he had adopted for the storage of bones and fishes' heads.

Riviera, *St. Servan*, *Ille-et-Vilaine*, *France*, *July* 9, 1901. EDITH DE J. DU VALLON.

Cumbrian Notes.—Our parish comprises a cold district near the Fells, and we are bounded on the south by elevations ranging from 1,900 to 2,100 feet above sea-level. We cover an area of some 22,000 acres, one-half of which would be moorland and fell, so that we have grouse, peewits and golden plovers in fair number, while at midsummer we are visited for a few nights by the black-headed gull. To us the kingfisher and nightingale, to name two birds that favour other localities, are visually unknown; but against these defaulters we have that white-breasted, merry little bird, the dipper, which, though seen all the year round, never fails to charm. Ours is an inhospitable climate, and we have lately felt the full rigour of a northern winter in view of the fact that for a fortnight past our parish has lain under several inches of snow, and severe frost has borne the white coverlet company.

Caldbeck, Wigton,
December 24, 1901.

RICHARD GREENUP.

Hedgehog and Eggs.—About four years ago one of my daughters found that a strange hen had laid four eggs under the rhubarb leaves in our garden, and on the eggs she found a hedgehog lying. I was away from home, but when I returned the next day we went to see what had happened: another egg had been laid, and as we came up the hen rushed out, apparently rolling one of the eggs a little away from the others: the ground was uneven. The eggs were all warm and perfectly sound and the hedgehog was lying on the top. To all appearance the hen had just been sitting on both hedghog and eggs, and neither she nor the eggs were injured, and the animal must have been there at least two days. Unfortunately we removed the creature and it returned to the shrubbery, but not to the eggs. Can any one explain this?

M. S. YOUNG.

HEDGEHOG.

Communication between Animals.—A few days since I had a curious proof of this between two cats. We have a blue Russian cat, who apparently is vain of his good looks. A short time since an artist painted his portrait, and it is a striking likeness: it has just been hung, and rather low down on the wall.

We have also a young yellow tabby cat, and one morning, the blue aristocrat finding his friend on the dining room hearth-rug, went to him and gave him a pat, whereupon both went to the side of the room where the picture hangs. The yellow cat did not, however, *look up*, and the blue gave him another pat, which had the effect of directing his eyes to the portrait, and they both gazed at it. Later in the day I found the yellow one again gazing, having got on the sofa to have a nearer view.

Clifton, M. R. F. S.
January, 1902.

A Retrieving Collie.—Having read in NATURE NOTES some instances of the cleverness of dogs, I think the following may be interesting. We have a sheep dog (whose mother is a pure-bred collie) just two years old, who retrieves game of all kinds well, and is much quicker on his birds than any retriever, and has an excellent nose. With running birds on a bad scenting day he is most steady and painstaking. The other day he retrieved some wounded wild duck out of water, though they mystified him a good deal when they dived. I must add that as a puppy of a few months old, he used to retrieve a glove or a stick, and even would find a penny in the long grass. Since then he has been most useful to me out shooting.

January 6, 1902. F. R. GREEN.

Tengmalm's Owl.—During a strong north-east wind here I discovered, one morning a fortnight ago, a Tengmalm's owl cowering on the ground in a corner of my premises on the beach, I suppose just arrived from over sea. He let me pick him up in my hands and carry him indoors, where I have since caged off half a room for him. After some forty-eight hours' fast he took kindly to "lights," and has grown quite tame, suffering me to-day to hammer nails into the wall within six inches of him, in erecting a perch, without troubling to move. He is a beautiful little bird. He seems to be quite unperturbed by any amount of noise, and except for a little clicking when I first picked him up I have not heard him utter a sound. He never moves from one place without first looking coolly round to see where he will lodge next, flies so quietly that unless you watch you are not aware when he moves. But this stealthiness, I suppose, is common to all owls.

Southwold, Suffolk, L. C. GRUBBE.
November 12, 1901.

Do young and old wild Birds lay small Eggs?—A correspondent asks me the above question. Personally I am of the opinion that most young wild birds lay normal-sized eggs, else how is it that during the nesting season one comes across so few undersized specimens? As regards old wild birds, it is generally understood, I believe, that fowls when aged do lay small eggs, but as to wild birds it appears a difficult matter to decide. I have, however, submitted this question to a very practical bird's-nester resident in Scotland, and also to a local professional naturalist, both of whom state that they agree with my correspondent's comments; also that young wild birds' eggs are smaller and the clutches larger than where normal-sized eggs are laid.

St. Albans, W. PERCIVAL WESTELL, M.B.O.U.
January, 1902.

Does the same wild Bird build a similar Nest each Year?—Another correspondent raises this interesting query. My own experience leads me to give a reply in the negative; but again my Scottish friend states that birds which continue in the same locality will build with the same materials. I have only space to record one instance recorded to me. A hedge-sparrow's nest was found in a rather exposed situation. The nest was composed of bents outside and internally of moss, lined with large *white* feathers. The nest was removed and the spot visited regularly. In about a week another nest was found within a few feet of the former one, again lined with *white* feathers and built of *bents* and moss. There was a farm about 200 yards away which would account for the feathers, but other hedge-sparrows closer to the farm had not used any in lining

their nests! The point raised is at any rate an interesting one, and should afford scope for research and observation during the coming nesting season.

St. Albans, W. Percival Westell, M.B.O.U.
January, 1902.

The Great Bustard and the Ruff.—Dr. Crespi's interesting notes in the January issue remind me of a few pages of a book on birds which a friend rescued from a grocer's counter, and which contains an account of this beautiful species. I cannot trace any date on the pages, and the few remnants sent me are very dilapidated, but apparently it was published after 1819, and the immortal Selborne naturalist is referred to as "*the late* Rev. Mr. White." The following notes from these fragments are interesting: "At periods not very remote, bustards were frequently seen in flocks on Salisbury Plain, on the heaths of Cambridgeshire, Norfolk and Sussex, the Dorsetshire uplands, the Yorkshire Wolds, and in East Lothian. The bustard is said to be the largest native bird of Britain. . . . . This bird is fast disappearing from our island, but we earnestly hope that everyone, sportsman or no sportsman, will respect the little remnant yet remaining of the numerous flocks which once graced our country, and save the breed of this noble bird from utter extinction in England. In the eastern part of the country we fear that it is quite lost, though it was comparatively common some time ago. It is the more necessary to impress on our readers the importance of abstaining from the destruction of the few above alluded to, because there is not much hope of replenishing the breed by captive birds." How true this latter statement has proved to be is well known to those who have followed Lord Walsingham's noble efforts to reinstate this noble bird in our country. A few particulars anent the ruff from the same work are also interesting: "These birds are found in Lincolnshire, the Isle of Ely, and in the East Riding of Yorkshire. They are much more scarce than they were formerly. . . . . Some are, however, still to be met with in the vicinity of Crowland; but the North fen near Spalding, and the East and West fens between Boston and Spilsby, are the only parts that appear to produce them with certainty, and there by no means in plenty."

St. Albans, W. Percival Westell, M.B.O.U.
January, 1902.

The Song Thrush in Winter.—Many ornithologists assert that the majority of our song thrushes migrate in the winter, but my own observations have always led me to a contrary opinion, and during this winter (1901-02) I have never seen so many song thrushes: indeed, next to sparrows and starlings, and perhaps one should add robins, hedge-sparrows, ring doves and rooks, the song thrush has been quite the commonest bird of the country side. I certainly see a great many more of these birds *during* the winter than throughout any other part of the year.

St. Albans, W. Percival Westell, M.B.O.U.
January, 1902.

The Song of Birds.—Mr. C. J. Maurice's note in the January issue is somewhat misleading, inasmuch as the robin and wren do not sing all the year through. The most persistent avian songster is, without doubt, the skylark: next comes perhaps the robin, then the hedge-sparrow and others. The wren always appears to me to be a most spasmodic songster and rarely seems in continued song. No birds sing the whole year through in our country: the moulting season invariably means a cessation of song for at least one month. But as to the interesting question Mr. Maurice raises as to the reason for bird's songs when sexual passions are of no importance or moment, I cannot offer an opinion. Jerome K. Jerome, in writing of the sparrow controversy some little time since, said we no more understood sparrow nature than we do human nature, and Jerome was not far out, at least as regards the meaning of birds' songs: the more one studies the question, the more the mystery deepens as to the correct interpretation to be put upon their melodies when uttered other than during the pairing and nesting season.

St. Albans, W. Percival Westell, M.B.O.U.
January, 1902.

Honey-Buzzard Nesting in Durham.—Mr. Thomas Robson, Derwent View, Winlaton, Blaydon-on-Tyne, County Durham, sends me an account of the nesting of this species in Durham during the summer of 1897. The birds had been seen annually for about five years "coming at haytime." They nested at last, placing their nest in a tall beech, about fifty or sixty feet from the ground, the structure consisting of a large platform of sticks, about three feet level, no depression, no feathers, no bones, but three pieces of wasp-comb. On August 18, there were young in the nest, and my correspondent states that they would not allow him to pick up the pieces of comb, striking vehemently at him with their wings but not using their talons. Mr. Robson obtained two of the young and one of the parent birds, and they were set up by Mr. Jackson, who stuffed for the Newcastle Museum, and who was under the late Mr. Hancock. Several well-known authorities have seen the birds and identified them without hesitation as the honey-buzzard. One is grieved at the shooting of one of the parent birds, as also of the young, for such an interesting occurrence is so rare that the birds having been identified, it is reasonable to suppose they would have nested again if undisturbed.

St. Albans, W. PERCIVAL WESTELL.
January, 1902.

How High Birds Fly.—An interesting account is given in this month's number of *L'Illustration* of the enormous altitudes to which birds can rise, as proved by aeronauts during their ascents. Hergesell, of Strasburg, has seen an eagle quite close to his balloon when at a height of 9,750 feet, and on another occasion he saw two storks and a buzzard at a height of 2,925 feet. Larks have frequently been seen 3,250 feet high, and rooks 4,550 feet. These, however, are exceptional cases, and it may be taken as a rule that birds seldom rise higher than 3,250 feet, while few even surpass 1,300 feet. The German Ornithological Society has made experiments in the behaviour of pigeons at great heights, the birds being thrown off at anything up to 9,750 feet. On these occasions it was found that if the sky were clear the pigeons dropped like shots towards the ground, but if the balloon were sailing over a belt of clouds the birds hovered round the car and waited till a gap appeared in the clouds, when they made straight for it. Cloudy weather also affected the pigeons' powers of returning home, birds in one instance taking all day to cover a distance of thirty miles.

Heron-eating Bird.—A correspondent in Cornwall writes me that in the stomach of a heron, recently opened by a naturalist friend, was found a small bird of some kind. The diet of the heron is certainly a varied one, but this cannibalism I have not previously seen noticed.

St. Albans, W. PERCIVAL WESTELL, M.B.O.U.
January, 1902.

Little Bustard in Sussex.—On December 16, 1901, one of these birds was shot near Burpham, Sussex, and was sent to Mr. W. B. Ellis, Taxidermist, Arundel. It was a female and weighed 26 ozs.

St. Albans, W. PERCIVAL WESTELL, M.B.O.U.
January, 1902.

Black Tern in Cornwall.—My friend, Mr. A. W. H. Harvey, of Penzance, informs me that about the middle of April, 1901, he saw a flock of from twenty-five to thirty black terns about two and a half miles from Penzance. A pair remained until April 24, but the main body left on the 23rd. My correspondent adds that he had great hopes they would remain to breed, but that so far as he could ascertain they departed for more northern climes. The elegance of their motions surpasses description, and it is the fairest bird sight he has ever witnessed.

St. Albans, W. PERCIVAL WESTELL, M.B.O.U.
January, 1902.

The "Mute" Swan.—"F. P. C." writes of the domesticated swan as "notoriously mute." The domesticated swan has, however, at least five easily distinguished notes, two of which are loud, and, to my ear, very musical.

Warham, Wells-next-Sea. E. KAY ROBINSON.

Strange Blackbird's Eggs.—In the spring of 1900 I found a blackbird's nest containing one egg of a bright greenish-blue colour, without a spot or streak. I took the one egg, and on visiting the nest three or four days after, found three more eggs of the same colour. About a fortnight later I again looked at the nest and the three remaining eggs were covered with brown spots. What became of them afterwards I cannot say. Once only I saw the bird and she certainly was like a blackbird. The nest was made of dry grass. I should like to know if this has happened before.

Pucklechurch, Gloucestershire. BLANCHE A. CONEY.

A White Blackbird.—Some time ago I saw a fine specimen of a white blackbird: with the exception of a mere trace of black in the tail feathers, the whole of the bird was pure white. To be quite sure of its identity I followed it amongst the trees and bushes of Epping Forest and kept it in view for about half-an-hour. Although I had been over the same ground many times before, and have also been many times since, that is the only occasion I ever saw it.

Buckhurst Hill, JOHN HORNE.
January 6, 1902.

Albinism in Birds.—We had for several years a blackbird in our garden, the middle of whose tail was white. There was just a little black on either side, but if the tail was spread the black feathers were hardly visible. The nest was in the forked branch of a plane tree, and the tree having grown inconveniently large, it had to be curtailed, and this branch was removed.

The birds disappeared during two summers, but came back to our garden in the autumn, apples and pears being an attraction, and plenty of food provided in the winter. This season the bird has not been seen, so we conclude he had lived out his span of life. None of the progeny have inherited the white tail.

We also have sparrows that are partially white.

Clifton, M. R. F. S.
January, 1902.

An Egg-sucking Thrush.—As will be seen by the following incident, the egg-sucking propensity is not always confined to such birds as jays, cuckoos, and birds of the crow tribe.

Colonel Gordon, who lives close by, was telling me the other day that for some time they had found the doves' eggs pierced and the contents in some way mysteriously to disappear. Thinking Mr. Rat was up to his games, they set a watch, and found the culprit, and instead of the suspected rat they found the thief to be a hand-reared thrush, which they caught, as soon as the doves had laid, in the act of piercing the eggs and sucking the contents.

Hampstead, JAMES E. WHITING.
December 30, 1901.

A Pendant Nest.—A doctor, lately returned from the war, says that when in the Transvaal he saw a curious nest, which unfortunately was in such a difficult position that he was unable to get at it. He does not know the name of the birds that built it. The nest was small and round with a hole for an entrance, and made of moss. It was attached by a single piece of grass, about two feet long, that looked like a bit of string, to the end of a branch on a shrub growing on the side of a precipice. The nest swung freely in mid air. The birds looked something like swallows, but the doctor knew from the character of the nest that they could not belong to that tribe. What were they?

Market Weston, Thetford, EDMUND THOS. DAUBENY.
November, 1901.

Kingfisher and Goldfish.—Three years ago a pair of kingfishers used to frequent the Roman bath, which is in the centre of the city of Bath, for the purpose of feeding on the goldfish which are kept in the tepid mineral water. Unfortunately they played such havoc with the fish that the attendant shot them. Through the instrumentality of the local branch of the Selborne Society, a minute was passed in the Bath City Council preserving these beautiful birds in future; but not until the last few weeks has a kingfisher been seen to visit the Roman

bath. On November 15, however, one met with a curious accident. Whether it attempted to purloin too large a goldfish or not is not known, but it was seen struggling in the water by an attendant, who rescued it and put it in the sunshine to dry, and after some time it flew away apparently none the worse for its immersion.

W. C. ELWOOD, *Hon. Sec. Bath Branch.*

East Cliff, Bath,
November 18, 1901.

Cuckoo and Pipits.—When in Perthshire last August I saw on the 11th a young cuckoo being fed by a pair of pipits. I had my glasses and watched the process with much interest for a quarter of an hour. The hard-worked little foster-parents came with food about every three or four minutes, and usually perched on the shoulder of their big child, being, I suppose, an easier way of reaching to its gaping maw. I suppose this is a usual mode, as I have since heard of a gentleman who has a young cuckoo stuffed, with a pipit on its shoulder, feeding it in the way I saw. It seemed rather late in the season to see such a sight.

ROSE TURLE.

Lizards in Ireland.—I am glad to be able to give "F. P. C." information about lizards in Ireland, and, if possible, to convince the shades of Darwin. Some thirty years ago I used occasionally to find lizards at Knockmaroon, co. Dublin. Unlike the one F. P. C. mentions, they were brown in colour and difficult to catch, being very quiet in their movements and soon lost to sight in the long grass. They were about seven inches long, and their tails easily broke off if not caught carefully. I well remember catching, or assisting to catch one at Coolmaine, co. Cork, about twenty-five years ago, which is still, for all I know, where I left it—preserved in a bottle in Coolmaine Castle.

Abbots Leigh Vicarage, Bristol, WALTER F. B. BRINKLEY.
December 16, 1901.

The creature which "F. P. C." saw and handled, which moved slowly, was possibly a lizard, but a legless and footless one. Its description approaches that of the slow worm or "blind worm," as it is called in some counties, which resembles a snake in form. The true lizards I have noticed disappeared on finding they were detected with much speed.

18, *Grandison Road,* B. B.
Clapham Common, S.W.
December 20, 1901.

Toads.—The notes and correspondence *re* toads are all interesting. I have seen similar migrations of young frogs, but took no particular notice of them; I think, however, I observed them in both India and Ireland.

In the latter country the incontestable accuracy of legendary lore used to teach that toads were altogether absent since St. Patrick laid them and snakes under perpetual exile; but I have heard it asserted that one scientist of known name, as an experiment, introduced a few into co. Dublin more than one hundred years ago. They did not appear to thrive, but long afterwards a colony of them was found on a long sandy spit from the Dingle Promontory at the head of Dingle Bay. When in that country I saw models of ships made by the coastguardsmen of that neighbourhood, manned with sailors, all of whom were stuffed young toads, and very comical Jack tars these young natter-jacks made.

I afterwards heard that this is not the only locality in Ireland where toads are found; but where exactly the other or others were, I forget.

I thought the common and frequently recurring myth as to toads or frogs living for indefinite periods in holes in solid stone, with nothing to support life, or to account for how they got there, had long since been pronounced untenable.

BENWYAN.

"Wasps and Bees" (p. 18).—Mr. Webster, the "Author of 'The Book of Beekeeping,'" &c., says I am wrong in holding the common belief that the worker bee kills the drone by stinging. He tells us that though the worker bee curls the abdomen round as if in the act of stinging, it does not kill the drone in

this way, but merely turns it out of the hive to die of exposure and starvation. If mistaken I err in good company. Darwin, in the "Origin of Species," speaking of the sting of the bee, says that the drones are "ultimately slaughtered by their industrious and sterile sisters." In the "Descent of Man," he states that the worker bees "kill their brother drones, and the queen bees kill their daughter queens." I did not know that being kept for a single night on the "floor-board of the hive" could reduce a drone to a "half-dead condition." It may be so, but such a rapid collapse, for want of a single meal, is very rare in the insect world. I doubt if it wants food at all in the middle of the night. Mr. Rawlins also asks to be allowed to differ from me when I say that "the honey bee kills the drones by stinging them," and gives as his reason "that bees are much more careful about using their stings" than I think. Sometimes I find them not nearly as careful as I should like. Will Mr. Webster and Mr. Rawlins kindly allow me to ask them for further light on the subject? Can they produce authority to upset mine?

Market Weston, Thetford, EDMUND THOS. DAUBENY.
January 7, 1902.

Clothes' Moths (p. 19).—I am made to say that clothes' moths are deservedly domestic "pets." It should be *pests*. "Under almost everything" should be *indeed* almost everything. "Nature's nightly scavengers" should be Nature's *mighty* scavengers.

January 7, 1902. EDMUND THOS. DAUBENY.

Injured Butterfly.—About three weeks ago I found a butterfly (peacock, I think) creeping on the floor of the room: it has lost the middle pair of legs, but otherwise seems uninjured. I put it under a glass shade, and as it persistently tried to climb up the slippery sides I gave it a wall of stiff net; on this it holds and sits with closed wings. Every now and then I find it has shifted its quarters: to-day it had got down to the edge of the shade, which is a little raised to admit air, and it opened and shut its wings when I lifted the shade up. Am I cruel to it? I thought it would die if let out of doors, or be injured if left to crawl in the room, and that perhaps it would hibernate under the shade in a dark corner. Will it go without food? Should I, if it lives, let it out of doors in April? Should I give it food, and if so, what? It would not taste a little damp sugar I offered it. Will the lost legs prevent it flying and getting its own living out of doors?

High House, Newbury, E. M. BEECHEY.
January 7, 1902.

[If the butterfly lives, by all means release it in April. It does not require food during the hibernating season, and will probably be able to get any it may want in its short subsequent life.—ED. *N.N.*]

Flies or Gnats?—Two summers ago we were driving along a road, half a mile or so from which was a row of elm trees, and above them we saw a thick, smoke-like cloud of gnats, which lay along the tops of all the trees, not close to them, but some few inches from the trees, so that the cloud of insects distinctly *outlined* the shape of the tree tops. As long as we were in sight of the trees they remained so, and might have been taken for smoke had they been over a building. I have seen a column of gnats in a field also like smoke: they were certainly gnats not flies. The same alarm of fire took place at Dorchester, near here, not long ago, but I do not know whether they were gnats or flies, though I believe the former. Not having the caution of the Vicar of Aylesbury, those who saw them are *said* to have sent for the fire engine!

M. S. YOUNG.

Double Peach Fruiting.—We have had in our garden here for four and a half years a standard double-flowering peach tree, which has hitherto produced a hard, green fruit about the size of a walnut. This year, however, the fruit grew very much larger, turned a yellowish colour, not at all red, but perfectly ripe and mellow, so that we enjoyed about twenty-five peaches of the ordinary flavour, though not of large size. Is not this rather unusual in a tree grown only for its

blossom? I may mention that last autumn we had the roots well manured and dug round.

Cambridge Lodge, St. Albans, ROSE TURLE.
November 11, 1901.

Bubbles from an Ivy Stem.—On my regular morning walk I noticed the following fact: It had been raining heavily in the night and the bark of the elm trees was saturated with water. Within reach of the ground I noticed a quantity of small bubbles—like the spittle of blight—collected on the side of the elm. I thought it very remarkable and that it could hardly be caused by an insect. I went on with my walk thinking this over and decided to look more into the matter on my returning. I noticed that there was a piece of dead ivy attached to the sides of the tree, and that the froth came from the bottom of this. The ivy had been broken off at the top and at the bottom. I watched for some time and noticed that water was trickling down this ivy and that the bubbles formed from the bottom. These bubbles did not burst at once: they were like soap-suds and held together. Thus I left the spot; but this morning I took off the piece of ivy and found it hollow, in fact a little pipe, through which the water flushed. I have it before me as I write, about one foot long, and very small round. I wish to know why the bubbles came like "blight" on that elm tree.

Moorcroft, Hillingdon, Middlesex. C. J. MAURICE.

SELBORNE SOCIETY NOTICES.

Council Meeting.—The next meeting of Council will take place on Tuesday, February 18, at 5.30 p.m., at 20, Hanover Square, W. After the Council meeting, at 6.15, there will be a meeting of the Field Club Committee. All *members* of the Selborne Society interested in the Field Club Rambles are *particularly* requested to attend this meeting.

New Members.—Richard Greenup, Esq., Caldbeck: Rev. E. N. Bloomfield, Guestling; Col. Saml. B. Bevington, J.P., Sevenoaks; Miss A. Bamford, Essendon; Denning Legge-Wilkinson, Esq., Brighton; Dudley C. Falcke, Esq., Allington Castle; Hubert H. Poole, Esq., Heathcote St.; Ernest D. Vaisey, Esq., Upper Norwood; L. H. W. Priday, Esq., Brixton; G. E. Mainland, Esq., North Finchley; Philip Cochrane, Esq., Anerley; C. H. Blackett, Esq., Wimbledon; W. E. Blackett, Esq., Wimbledon; Dr. W. J. Treutler, F.L.S., Hove; Miss E. M. Shenard, West Wickham; Mrs. E. O. Maynard Proud, East Langton; Frank P. Norris, Esq., Whatton-in-the-Vale; Miss Porter, Northfield; Miss Archer, Edgbaston; Miss E. F. Archer, Edgbaston.

Donations and Subscriptions.—The Council begs to acknowledge with thanks the receipt of the following donations: Mrs. Slack, 7s. 6d; C. Surgey, Esq., 16s.; Miss A. E. Redpath, 5s.; W. J. Richards, Esq., 5s.; and the following subscriptions over 5s.: Col. Mainwaring, 10s. 6d.; Col. Saml. B. Bevington, J.P., 21s.; W. H. Warner, Esq., 21s.; Mrs. W. Greenwood, 21s.; Josh. Rawlins, Esq., 7s. 6d.; A. J. Hall, Esq., 10s.; R. Evans, Esq., 10s.; Mrs. E. Hubbard, 10s.; Miss Agatha Walker, 10s.; Hon. Walter Rothschild, 21s.; Mrs. E. Brightwen, £5 5s.; J. S. Budgett, Esq., 21s.; C. W. Ware, Esq., 10s.; Miss C. Alston, 21s.; W. J. Carver, Esq., 20s.; Cosmo Blore, Esq., 10s.; W. W. Maw, Esq., F.R.A.S., 10s.; W. Penfold, Esq., 10s. 6d.; G. B. Milne-Redhead, Esq., M.A., 10s.; Rev. F. M. Millard, 10s.; John V. Powell, Esq., 10s.; Mrs. Turle, 10s.; W. E. Milne-Redhead, Esq., 7s. 6d.; G. T. Rope, Esq., 7s. 6d.: Mrs. R. F. Sturge, 7s. 6d.; Mrs. Lomer, 20s.; Miss Lomer, £2; Mrs. Silkenstadt, 21s.; Miss Cheetham, 10s. 6d.; Alf. Culshaw, Esq., 7s. 6d.; Miss E. Nicholl, 20s.; Miss Brodrick, 10s.; Miss E. M. Brand, 10s.; Miss J. Brand, 10s.; Gerald E. Barrow, Esq., M.B., 10s.; Mrs. Hogg, 20s.; Mrs. G. S. Kempson, 10s.; Mrs. G. Dymond, 10s.; Mrs. Eden, 10s.; Mrs. H. J. Evelegh, 10s.; W. C. Stapleton, Esq., 21s.; Miss Archer, 21s.

NEWS FROM THE BRANCHES.

Bath.—The Bath Branch has arranged for a course of six lectures to be given in conjunction with the Oxford University Extension lectures. The subject chosen is "The Growth and Life-Histories of Animals," and the lecturer is Mr. A. W. Brown, B.A., F.L.S. (late Exhibitioner of Christ Church, Oxford). This is the first occasion that the Local Branch has united with any other Society in a course of lectures, and if the experiment is a successful one it may become an annual fixture.

Clapton (Lower Lea Valley).—The meetings of this branch are being held this season at the Sigdon Road Board School, the room previously used being no longer available. Owing to delay in completing the necessary arrangements, the session began a month later than usual, the first meeting being held on Saturday, December 21, 1901, when Mr. G. H. Watson read a paper on "Snakes and their habits," illustrating his remarks with living specimens.

On January 18, Mr. Stanley Austin gave some very interesting "Notes on some Gothic Buildings," which included the Hospital of St. Cross, Winchester Cathedral, Christchurch, Oxford, and others. Mr. Austin's Notes were illustrated by a fine series of lantern slides, Mr. Adolph Robbins kindly acting as lanternist.

Ealing. March 10. Public Buildings, Ealing, W. Lecture before the Ealing Photographic Society, by William Martin, Esq., M.A., LL.D., illustrated by original lantern slides, upon "Ringmer and Gilbert White; Ringmer as a field for the camera." The President and Council cordially invite members of the Selborne Society. Trams from the Shepherd's Bush Station of the Central London Railway pass the doors of the Public Buildings.

Selborne Saturday Afternoons:—

Saturday, February 8. KEW GARDENS.—Professor Boulger will conduct the members through the Arboretum. Assemble at the main entrance on Kew Green at 2.45 p.m.

Saturday, February 22.—Natural History Museum (Bird Department). Meet Mrs. Percy Myles in the Entrance Hall, Natural History Museum, at 2.15 p.m. Dr. R. Bowdler Sharpe, Keeper of the Ornithological Department, has kindly undertaken to act as guide to the Selbornians.

ANSWERS TO CORRESPONDENTS.

C. Ware.—The data sent are insufficient for identification.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., Richmond, S.W.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

No. 147. MARCH, 1902. Vol. XIII.

SELBORNIANA.

Our Annual Meeting.—The attention of our Members is directed to the notice that appears at the end of the present number of the date fixed for our Annual Meeting and Conversazione. The Council propose that a Gilbert White Exhibition should form part of the latter, and the Secretary will be glad to receive offers of the loan of any relics, or of editions of the "Natural History" and "Antiquities" for the occasion.

Burnham Beeches.—Recent correspondence in the newspapers has directed attention to forestal operations in the management of this open space, the expediency of which has been doubted. Criticism has come from the artistic, ornithological and entomological sides; and the Council, alive to the necessity for the Selborne Society's being informed as to the true state of the case, have commissioned the Editor to make a visit of enquiry. His report will appear in our next number.

Arbor-Day.—While we are going to press the Annual Meeting of the Society for the Protection of Birds is being held, at which the excellent proposal is to be brought forward that His Majesty the King's coronation-year should be celebrated by the institution in all the schools of the country of a "Bird and Arbor Day," such as has already become a national institution in many of the United States. The same subject is to be brought before the Royal Horticultural Society at their next meeting. The proposal is one which has already been mooted in these pages, and which will receive the hearty sympathy of every Selbornian.

"Nature-Study" Exhibition.—A committee of educationists has been formed with a view to the holding a "Nature-

Study" Exhibition in London about the end of July. The exhibition is intended to be strictly educational, and to be open to all schools or individuals interested in "Nature Study," teachers being especially asked to send illustrations of their courses in the subject, and prizes or certificates being offered for collections, drawings, photographs, note-books, calendars, &c. In the preliminary notice which we have received it is expressly stated that "Specimens of rare plants would not be asked for, and the uprooting of any plant would be especially forbidden." An association is to be formed for the purposes of the exhibition with a minimum subscription of 2s. 6d., and any further information can be had from either C. S. Roundell, Esq., the Hon. Treasurer, 7, Sussex Square, Brighton, or John C. Medd, Esq., Stratton, near Cirencester.

Success of the United Devon Association.—The need for the activity which is being shown by the United Devon Association in their efforts to preserve the natural beauty of the county by the prevention of the illegal removal of ferns and wild flowers was forcibly exemplified at the Castle of Exeter on February 11, when the Wonford magistrates dealt with two flagrant offenders, Henry Westlake and Richard Ley.

Mr. F. H. H. Orchard, who appeared to prosecute, asked that a heavy penalty might be inflicted, as such men as the defendants were in the employ of London dealers, who paid all fines inflicted on the fern gatherers when the latter were convicted.

On the morning of February 6 the defendants were found by an under-keeper in the act of digging up fern roots, and promised not to return if allowed to go; but at noon they had returned, and were discovered in the same occupation, and were a second time ordered away. When they had gone the head keeper found that for yards around the ground was pitted with holes and that serious damage had been done. Crossing into another cover, he espied inside the hedge no less than ten sacks filled with ferns and covered lightly over with leaves, and close by a large heap of ferns ready for packing. He at once communicated with the police, and P.c. Hill put himself in ambush until the defendants, with another man and a horse and trap, arrived on the scene shortly before five o'clock in the evening to remove the fruits of their labour.

Evidence was given as to the posting of notices issued in connection with the United Devon Association, and containing cautions against the removal of ferns, and Mr. T. McKinlay, under-steward, estimated the damage to the ground at £5, and assessed the value of the ferns at from £8 to £10.

Defendants pleaded not guilty.

Mr. Orchard said in the case of Westlake there was no doubt of his having sent to London at various times large quantities of ferns. On January 20 he sent bags of ivy and ten bags of

ferns, on the 31st he sent seven bags of ferns, and the first week of February two bags more. The bags were consigned to a man in Covent Garden Market.

Mr. Jesse, the deputy chief-constable, added that there were twenty-four convictions against Ley and one against Westlake. The depredations of the character deposed to were becoming a perfect nuisance to the county and the police. The damage done in that way was great, and the police were doing everything possible to assist the United Devon Association in their efforts to deal with what was a serious matter.

The Chairman said the Bench were determined to put a stop to such depredations, which were ruining the beauty of the county of Devon. Westlake would be sentenced to two months' imprisonment with hard labour, and Ley, who appeared to have been, to a certain extent, the other's agent, to six weeks' imprisonment with hard labour.

Betting and Beagles at Eton College.—We have received the following letter from Mr. Joseph Collinson, of the Humanitarian League:—

"There has lately been some talk in the Press about 'the praiseworthy determination of the Headmaster of Eton to put down in his school the mischievous practice of betting.' But if betting is rightly forbidden among schoolboys, ought not beagling to be at least as strictly denounced? How can it be more demoralising for Dr. Warre's 'infants' to make bets on horses than to worry hares? The accounts printed in the *Eton College Chronicle* of the 'breaking up' of hares and the 'blooding' of hounds are simply sickening; and at no other public school is such an amusement allowed. Why does not the Headmaster of Eton (who is also on the Committee of the R.S.P.C.A.) put an end to this scandal by converting the hare-hunt into a drag-hunt, which would give the boys a healthy form of exercise without the stain of cruelty?"

The Wild Birds Protection Act.—Mr. Douglas Secretan, of Worth, Sussex, writes:—

"I have read much correspondence in Nature Notes complaining that the Wild Birds Protection Act is a dead letter. Allow me to say that this is not the case here. We used to be very harassed by bird-catchers, but since telling one or two of them the law (politely, but very clearly), and setting a village policeman on their track, we have been rid of them altogether. Sunday was their favourite day, and they generally came from London. I think if all your members would make this law public, and insist upon its being put into operation, it would soon become a true part of our living legislation."

We happen to have had an opportunity years ago of witnessing the zeal of the police in the Crawley district; but in what has appeared in these pages on the subject utterance has merely been given to the firm convictions of such experienced men as Mr. Hudson, Mr. O.G. Pike and Mr. Percival Westell; and we are convinced that the existing law is defective, and that, such as it is, it is inadequately enforced. As a case in point, we have just received a cutting from the *Irish Times* of February 11 noting the shooting in co. Carlow of a specimen of the American bittern, *Botaurus lentiginosus*, a species which has only been recorded some twelve times in the British Isles.

Royal Protection for Birds.—It having been stated that a contractor had agreed to supply a London milliner with 10,000 seagulls' wings for the trimming of women's hats in the coming season, Lady Florence Dixie wrote some verses denouncing the cruelty, and sent them through Miss Charlotte Knollys to the King and Queen. She has recived the following reply :—"Marlborough House, S.W., February 17, 1902. Dear Lady Florence, I have given the verses you sent to the King and Queen, and I am sure that their Majesties will do all in their power to stop this cruel massacre of the poor little birds. It is really too sad and terrible. Yours very truly, Charlotte Knollys."

Gilbert White's Sermons. A Query.—Mr. E. A. Martin writes from 23, Campbell Road, Croydon :—

"At the sale of the Gilbert White manuscripts, which took place at Sotheby's on April 26th, 1895, one of White's sermons, in his own handwriting, entitled 'On Behaviour at Church,' was put up for auction. It was endorsed as having been preached etween 1749 and 1792. Unfortunately, although present at the time, I did not catch the name of the purchaser. I am anxious now to ascertain the present location of the sermon in question. Can any reader of Nature Notes assist me"

Memorial to a Selbornian.—The February number of *The Stone Trades' Journal* contains an illustration of the marble tombstone recently erected at Knowle, Dorsetshire, to the memory of Laurence W. Pike, who died in August last. The memorial, which is by Messrs. Harry Hems and Sons, of Exeter, represents our late member among his friends, the squirrels, in a pine wood.

Our Illustrations.—It should have been more explicitly stated in our last number that all the illustrations in that number were from Mr. English's "Photography for Naturalists."

BIRDS IN WINTER.

(*Reprinted, by kind permission, from the* Standard *of February 4th.*)

THE frost, which showed signs yesterday of breaking up in London, had lasted quite long enough in the greater part of England to cause considerable distress among the bird population. The vivacity of even the London sparrow was visibly checked; and all bird lovers who possessed any kind of apology for a garden at the back made a point, we hope, of throwing out crumbs, with any bits of fat, suet or other refuse that could be spared, to eke out the scanty means of subsistence which such a season as the present affords him. It should be remembered that birds find it necessary to drink as well as to eat, and a little water put out for them where they can

get it easily is as great a boon to them as meat or bread. It is not the sparrow, however, who is the worst sufferer from a hard frost. He has no fear of mankind, and will come close up to the kitchen door for what he wants: and what he gets there is, after all, only supplementary to what he can pick up in the streets and thoroughfares.

The birds, of course, which are exposed to the keenest privations are those which have to shift for themselves. The blackbirds and thrushes in the London Parks belong to this class. In one of the very hard winters which occurred a few years ago more than half of them perished. The ground is so hard that they cannot find any worms. There will, of course, be some soft places here and there which the frost has spared, and where a certain amount of food is procurable; but not enough to prevent a general famine. Birds which are familiar with human habitations fare better in the country than in town when snow is on the ground. Blackbirds and thrushes, chaffinches, linnets, house sparrows and hedge sparrows, robins and titmice should always be sure of a meal every morning on the lawn before the dining-room window. No man or woman who does not see to this deserves to have a country house at all. In the afternoon the birds have the stack-yard and the barn-yard for their wants, though these are not what they were when corn was threshed out with the flail, and the work was going on the whole winter through. Still they can pick up a bare subsistence there, though the blackbird only comes when he is very hard pressed, and then hangs about rather shyly at the back of the crowd, as if he felt himself in a false position. Other birds, not frequenters of the garden or the farmyard, will often join the group. The yellow-hammer, starved out of his hedgerow, will frequently make one of the little party in front of the barn door, or clinging to the side of the rick. The tomtit must not be forgotten, who, indeed, is always with us, and is not dependent for his food on the above resources.

The manners of birds at such times are very amusing and interesting. The gulls and ducks in St. James's Park behave in much the same manner as the sparrows and finches. They all alike act on the good old rule of taking what they can take, and keeping as much as they can. But this is the bright side of bird life in winter. There is another, which is more melancholy. There are some species which will never approach a human habitation near enough to be fed, and may often be seen in the fields and hedges either dead or dying of hunger. The fieldfare is one of these. When the hedge fruit and the holly berries have disappeared his plight in a hard winter is pitiable. Instead of the loud, cheerful chuckle by which he makes his presence known when in full health and spirits, and the rapid and timely flight by which he disappoints the youthful gunner who thinks he has just got within shot of him, he mopes, and creeps along the ground, almost waiting to be trod upon before he moves out

of the way. Even snipe and waterhens have been known to come up to the house, though the latter are very shy birds, and in very hard frosts may be seen fixed among the twigs of the hedgerows frozen to death. Still, they do occasionally conquer their fear of mankind and walk warily on to the lawn in quest of food; but the fieldfare never. Other wild birds contrive to support themselves in some sort of fashion. For the wood pigeon there are turnip tops. The skylark gets sufficient green food to keep him alive; and is never picked up a mere skeleton, like the waterhen, the fieldfare, and the redwing.

A SHORT MONOGRAPH OF PLOCEUS BAYA—No. II.

"Through knots of young date-trees, in whose plumy crests
The Bayas are building their pendulous nests."
—*From old Persian Legend*, 16th *Century*.

SINCE I wrote my short monograph on the "Ploceus Baya," one of the family of the weaver-birds, published in NATURE NOTES of February, 1898, I have been making a further effort to ascertain, if possible, the objects sought by these interesting little birds in depositing particles of mud on either side of the perch in the male nest, or what is more suitably termed by the natives of India the swing-nests, or "jhoola." I stated in my paper, p. 29 of that number of NATURE NOTES, that "on either side of the male nest near to the perch is always to be found, adhering to the grass, small bits of clay or rather mud, but what this is intended for no one can surmise. Some say that it is to act as a whetstone to sharpen their beaks; others, from what natives have told them, think that the male bird puts a firefly or glow-worm on the wet mud in order to act as a light to cheer the female bird at night during nesting time." Mr. Layard, of Ceylon, who studied the habits of these birds very carefully, never met with a firefly in the nest, and though I have several nests with the mud, there is no sign of there having been any portion of an insect attached. Oliver Goldsmith, in his "Natural History," 1816, has a note about this to the following effect: "The male bird keeps watch, and puts on one side a little tough clay, and on the top of this clay is fixed a glow-worm to afford its inhabitants light in the night. It must be left, therefore, like much else in the study of Nature, for future investigation."

Accordingly, through the kindness of my friend Mr. T. L. Barlow, a further enquiry was set on foot with a Mr. Assistant-Commissioner Buckley, of the Salt Revenue Department, who for many years has devoted himself to natural history, and he writes from Marwar or Jodhpur, Rajputana, under dates February 21 and April 11, 1900: "You, of course, know the shape of the

breeding nest of these Bayahs; besides the nest proper the male builds a 'jhoola' or swing for himself alongside this breeding nest. This 'jhoola' is about six inches long and open at the bottom, with a bar of worked grass from side to side to act as a perch upon which he sits. In the 'jhoola' I have often found dabs of mud against the side, on which I have found fireflies. The natives say the male bird puts them there to light up his 'jhoola.' My own opinion is that he rather puts them in as a store of food for his mate, as generally the insects are so embedded in the mud as to be incapable of moving or of emitting any phosphorescent light. Another thing, I have found small grubs and caterpillars in the mud of the 'jhoola,' which emit no phosphoric light, and which could only be imprisoned by the Bayah bird for food. The Bayah, as you know, is a grain eater, but, like all grain-eating birds, feeds the young when just hatched on soft grubs and insects. These birds inhabit the foot-hills of the Himalayas and sub-mountain districts for the greater part of the year, and only with the in-setting of the rains does it wander over the plains to nest. What is not so commonly known is that the same Bayahs will, year after year, visit the same neighbourhood to nest and will choose the same trees, and that this habit of the Bayah has brought about a distinct change in the colour of the birds. The families which breed in the arid portions of the Punjab, Scinde, Rajputana, and Beloochistan are lighter coloured, the yellow is more gamboge than golden yellow, the brown of the nape, back and scapulars is duller, and the under-feathers lighter in colour. Major McNair's description is accurate in regard to the Bayah who breeds in the more fertile and greener plains. The Bayah uses for nest-building the grass known as 'surput' and 'sirkunda.' I am not sure, but think botanically it is called *Saccharum Sara*."

I also further prosecuted my inquiries and wrote to Captain Barry de Hamel, of the Straits Settlement Police, who, in a reply dated May 26, 1900, from Province Wellesley, Penang, says: "I have made fairly exhaustive enquiries into the question of the mud particles in the nest of the Baya birds. My informants all seem decided as to one point, and that is, that the mud is really used to place fireflies upon, and I have met people who have actually seen them there. I have seen no one, however, who has ever found any other species of fly or insect within the nest. My informants are undecided, however, as to two points; the one party argue that the fly is used essentially as a lamp to guide the parent birds at nights; the other, that it is a special delicacy for the youthful birds to fatten upon. It may possibly serve for both purposes, the fly, when too weak to give further light, being eaten. I am trying to get a nest of young ones, and getting a few fireflies to place them on the mud and watch the result. It is just possible that the mud may in some way nourish the firefly, hence I wish to see if the fly is eaten, or changed, or remains the same. The 'peepit,' may I point out,

is not the true 'weaver,' but a species of house-sparrow. The true name here of the weaver-bird is Burong Chukria, probably an onomatopœic word."

Another correspondent from Singapore also writes me: "I think you will be pleased to hear that I have been able to get a little more accurate information as to the reason for the bits of mud in the weaver-bird's nest. One of Simon Ooorozo's boys says that when at Tanjaig Katong a short time ago, he and some other boys found a weaver-bird's nest with three young ones, and also saw sticking in the mud three fireflies."

I also addressed my son at Lahore, in the Punjab, and though unable to gain further information on the spot, he drew my attention to Skeat's "Malay Magic," published last year, in which he writes: "Besides the ordinary bottle-shaped nest, the weaver-birds also occasionally make a hood-shaped or rather a helmet-shaped nest, alleged by the Malays to be the male bird's swing (*Buāyan*). This swing resembles the upper half of an ordinary bottle-shaped nest, with a perch across it, woven of grass. On the walls of the swing, just over each end of the perch is a small daub of clay. The Malays allege that the male bird swings in it while the female is sitting, and that the young, too, 'take the air' in it when able to fly so far. Into the daubs of mud over the perch, the male bird sticks fireflies for light at night."

Still desirous, if possible, to solve this problem, I obtained "Lang's Animal Story Book," in which he gives notes from Vaillant and Paterson about builders and weavers, and writes: "There are a whole quantity of birds spread over the world, who are almost exclusively weavers, and can form nests which hang down from the branch of a tree without any support. To this class belongs the Indian sparrow, which prefers to build on the top of the very highest trees, especially on the Indian fig, and particularly on those growing by a river side. He weaves together tough grass in the form of a bottle, and hangs it from a branch, so that it rocks to and fro like a hammock. In these nests glow-worms have been found, carefully fastened into a piece of fresh clay, but whether the bird deliberately tries in this way to light up his dark nest, or whether he has some other use for the glow-worm, has never been found out, but it seems quite certain he does not 'eat it,' as Sir William Jones once supposed."

I had written this far, and concluded that it was about time for me to sum up the evidence I had received, and what my own observations had led me to, when I received a further valuable offer of assistance from an influential Malay chief, who was prepared to direct his people to watch these weaver-birds, both by night and by day, and to give me the result of their investigations, so with your permission, I hope to add another short paper upon the receipt of this information.

"*Scotia*," *Preston Park*,
Brighton.

I. F. A. McNair,
Major R.A., C.M.G.

FRAGMENTS FROM A LOG CABIN, NEAR SALMON RIVER, BRITISH COLUMBIA.

THE long winter has gone. Once more the valleys and the southern slopes of the mountains are exposed to view. Warm breezes, spring sunshine, rain, shed by clouds hither borne by the south wind, have melted the winter snows. Under the influence of the season the great whiteness has for the last month been slowly retreating across the meridians to the eternal winter of the far North. Now, except upon the higher peaks, the snow is all gone, and the long-hidden, rested earth, is once more green with renewed life.

Some hundred feet below my cabin, the Salmon River, a tributary of the mighty Columbia, rushes in surging tumult through the rocks which dispute its journey to the Pacific. As I sit writing by the window, its music floats from below in varying cadence. Anon, in fancy it carries one across the forests to where the great combers come rolling in upon the beaches of the Pacific Ocean. Again, one hears it tell of wintry spume and spindrift, thrashing the shores of old Devon; but I look upwards, and see the pine tops bending, and know that it is the winds and waters which I hear in unison.

By and by, in the mid-life of summer, the now boisterous river will flow in a gentler mood, splashing and tumbling on in diminished volume over the rocks and pebbles, with here a little playful rapid, then again lovely shady pools teeming with mountain trout.

Some few hundred yards from my door, there flows a little spring-fed creek. Let us journey there awhile. It is pleasant sometimes to leave the river, with its tale of strife, and turn to the more tranquil beauty of the fern-covered, moss-grown banks of my little rivulet. All around in the shadier and damper spots, the vivid green moss-carpet is splashed with the white-tinted blossoms of thousands of lilies, the air laden with their fragrant breath. They are lovely flowers, but a few days of exotic growth spans their feeble life. Just before they wither and die their white tint changes into a delicate shade of pink. Later, when the sun penetrates deeper into the glades, the ground near the little creek will be covered with wild musk, and in the open spaces there will spring up a profusion of various coloured flowers. Many of the wild flowers which grow here are similar to those one meets with in old English country gardens. In the early morning, just as the sun is peeping over the mountain top, the whole forest is atune with the carol of the birds. Soon, when the sun mounts higher, one only hears a diminished choir; then again, when the western peaks are reddening with his declining rays, the full-feathered songsters seem to unite in vesper warblings. Slowly the valley sinks to rest, shadows creep up the mountain side, darkness settles down upon the

forest. The great pine trees tower like spectral sentinels above the timber of lesser growth. A night wind, chilled in its journey across the glacier and snowfield, sighs through the valley: it seems like the last breath of the dying day: then, save the river, all is quiet. Night has touched Nature's eyelids. The forest sleeps.

Following the valley of the Salmon River is the track of the Nelson and Fort Shepherd Railway, over which a train runs daily from Nelson to Spokane in Washington county, U.S.A., and another from that city to Waneta, a little town about twenty miles from here. It is a charming walk along the railway, and the principal promenade of the folk who dwell in the little mining town of Ymir. Along the railway the writer sometimes takes a pleasant ramble. Thousands of butterflies flutter amongst buds and blossoms, and one sees many which carry one back to the summer hedgerows of the Old Land.

The *Vanessæ* are now especially numerous. Presently, as the season ripens, will come the *Argynnis*, with his beautiful silver spots beneath the wings. This insect is an exception to most butterflies, in that the markings beneath the wing are more showy than those on the top. Later still, the great *Papilios* will come, distinguished by their soaring flight; and the common but lovely Painted Lady (*Vanessa Cardui*), also the *Colias Pieris*, and a lovely insect (a *Limenitis*, I believe) which they say does not breed here, but comes up to the north with the sun.

Apropos of butterfly collecting, I have had one or two rather amusing experiences.

When out collecting one day last year, I met a man (a leading citizen, and a J.P. of a neighbouring town).

"Good morning, Mr. ——" said I.

"How do you do?" said he. Then, eyeing my net, he said: "Wot's this year thing you've got?"

I explained what it was, and also its uses, whereupon he said: "Wa'al, I'm blamed if it ain't the first time I've seed a fellar a hunting of all fired bugs.[1] What do you use them for, anyway?"

Controlling my emotion, I explained as best as I could, and he went on his enlightened way, muttering, "Wa'al, I'll be darned."

Next day, when out again, I encountered another leading citizen. We exchanged greetings, then he, too, saw the net, and said: "How do you ketch 'em?"

I illustrated the *modus operandi* upon an imaginary insect.

He said: "By Gum, that's a sight ahead of using a fish pole (fishing rod)! Guess you catch quite a few that way?"

"Yes," I replied; "I caught over fifty beauties yesterday."

"Great snakes! You won't leave many fish in the river, landing them that way!"

I went home and devised a folding net from the shattered

[1] The name used for all flying insects indiscriminately in the West.

ribs of an old umbrella; and now, upon the approach of the ntelligent native, I smuggle it into my breast pocket.

If it were not trespassing too much on the space of this Journal, I should be pleased to invite its readers to further explore my little creek, and ramble along the track of the mountain railway. I could pilot them to where, in June and July, the wild raspberry brambles will be weighed down with their burden of luscious fruit, and inorganic matter could also be studied in the fantastic rock foundations.

We could visit the mines and return laden with lovely crystals of fluor-spar, cleavage rombs of calcite, beautiful hexagonal prisms of rock crystal, dodecahedral crystals of garnet, and many other specimens of interest to the mineralogist.

In this out-of-the-way corner of the world, one seldom meets anyone capable of appreciating the wonders of the Maker's handiwork. There are practically here but two classes of persons, the miner and those who supply his needs, or prey upon his credulity. The former, when at leisure, seldom moves far from a saloon or gambling table, and the latter class, as a rule, cannot understand anything of beauty which is not intimately associated with the sheen of the "almighty dollar."

C. H. Walker, B.C.

"PUNCH."

"FATHER said you wanted a dog," and a shy, awkward boy deposited on the lawn a small soft bundle of fur on four short white furry legs, and then scarcely waiting to hear if we were willing to keep the little creature, he beat a hasty retreat. Such was our introduction to the new inmate of our household thirteen years ago. The day was May 30, the time five o'clock in the afternoon. We certainly had mentioned that when we were fairly settled in our new Vicarage home we thought we should have a dog, but of what breed we had not at all decided. However, here was a small, soft creature in the shape of a spaniel pup, just five weeks old, left to our tender care. Poor baby! it seemed rather a shame to launch it forth into independent life so soon. He was a beautiful little creature, a thick curly coat of rich brown fur, with a soft white ruff round the neck and a white breast, and four short white legs and paws. He looked rather helpless, and nearly tumbled over when he made a few steps and reached the edge of the lawn. I suppose to his innocent eyes the height of the lawn above the path looked rather like a cliff, though it was barely three inches. We ourselves had just come from London and were not provided with kennels and conveniences for harbouring animals. After fetching a little milk in a saucer which the pup seemed to relish, our next care was to find some place

where he could sleep. The gardener, a kindly disposed man, said there was an old beehive in the stable, which, turned upside down and lined with hay, might make rather a snug bed for the wee doggie. So when bed-time came we put him in the impromptu bed and shut him up in the stables. We went to look at him later on, and of course he had scrambled out and was exploring the new home. No doubt he was searching for his mother and brothers! However, we put him back in his bed and left him for the night with a saucer of milk on the ground.

The next morning he was off again on an exploring expedition when we visited him, and seemed none the worse for his first solitary night. He was allowed to wander about on the lawn, and soon learnt to follow us about and play with balls and our feet. There was a great discussion as to his name. Some one suggested Punch, and Punch he was called.

He was allowed to come out on short walks with us: when he was tired he used to cry, and then we carried him. He was very fond of getting up into the arm-chairs where we were sitting and planting himself snugly between us and the soft arm of the chair. But as he grew he required more room, and we gradually found we were obliged to vacate the chairs as he kept pushing us with his soft paws, evidently intent on making *himself* comfortable whatever we might be! In after years he preferred the best chairs and sofas, and used to wag his tail with great complacency when we came in and found him curled up in the best armchair. I fear he was dreadfully spoilt, but he was so fascinating, and such a beautiful little dog with his long curly brown ears, and so affectionate! We had a visitor one day, and Punch celebrated her arrival by climbing upstairs and trotting into her room. There, alas, he found a soft pink velvet slipper, trimmed with white fur. He thought it lovely and a most delightful plaything. He shook it and worried it, till the pink slipper was hardly recognisable. He was *told* he was very naughty, but our visitor had fallen in love with him and he got more kisses than blows. Sometimes he was persuaded to sit quietly in a toy-cart and be dragged round the lawn, and he enjoyed his rides in the perambulator. As he grew older he preferred his walks and drives with the grown-up members of the household. He would run for miles with the carriage, and was wild with excitement when he saw the pony being harnessed, jumping up and kissing the pony's nose. He had the most supreme contempt for low-bred dogs, and tramps he abhorred. Many a tramp has he frightened away from the house. He was never a big dog, but had a most impressive bark. One visitor was afraid to come to the door because she heard Punch barking inside. She wrote to apologise saying she had heard "the bark of a large dog," and was afraid to venture.

Punch was very loyal. We were his master and mistress, therefore honour paid to others was wrong. Consequently after

funerals, when the mourners had left the grave, and it had been carefully filled in and covered with wreaths sent by sympathising friends, Punch would creep through the rails which divided the garden from the churchyard, and fetch wreath after wreath off the grave into the garden and lay them at our feet. It was very wicked, but very comical. Of course we had to wire the railings so that he could not get through to commit these desecrating acts. He got very knowing and when he was scolded and detected a whip in our hands, he would retreat behind a very thick box tree and there remain till he thought our anger was appeased.

He won the hearts of many people. The post-mistress loved him and insisted on giving him milk when he went to the post-office. One day he found a bundle of rabbit tails in her shop which she was carefully keeping for making a savoury stew. Very quietly did he take possession of them and carried them triumphantly back to the Vicarage with the intention of burying them. He was sent back, doing penance by being made to carry a basket containing a whole rabbit tied round his neck to make amends for his theft. The post-mistress was very amused, and told him he was a very clever dog, and was quite indignant that we had thought it necessary to compensate her for her loss. He was very seldom guilty of stealing. He was too well fed at home to seek food elsewhere.

Poor Punch was very unhappy when we went away: he would sit on the seat of our little carriage, when it came back from the station, till turned out by the coachman, and then he lay in front of the stable door. Very rarely could he be persuaded to eat any food for two days, and he was wild with joy when we returned. He had a curious custom on Sunday mornings when we had gone to Church of jumping up on the table in the dining room and lying there till he saw us coming back up the garden path. One winter we went to Bournemouth and took Punch with us. He was very happy and got greatly admired. People used to stand on the cliff and watch him swimming out into the sea to fetch the little barrel we used to throw for him. They often passed remarks on his beauty and noble appearance. One lady remarked, "He is a beautiful dog, and he knows it, too!" I was always glad when he was safely back on the shore: the waves seemed so big and Punch so small that he looked as if he *must* be overwhelmed. But he loved it, and always came back safe and sound, barking with pleasure and excitement.

Now he is getting old and blind and deaf, but he still holds the same place in our affections, and is very much privileged.

P.S.—Since writing this, the dear old doggie has died, and we are *very* sad without him. He is buried in the garden, and we have planted primroses and violas over his little grave. He died very quietly, after a long life of loving care and happiness.

A. M. Greenwood.

A GUM TREE ON THE MURRAY.

THERE is a nook near the river where a pleasant leisure hour may be spent. It is within sight and sound of the house. The path lies chiefly amongst bushes and saplings: a few tall gum trees fringe the bank: irregular cattle tracks intersect each other, leading down well-trodden slopes which break the steep bank at intervals: little dry creeks with sandy beds wind away from the river. Perpendicular cliffs descend to the water's edge. Many little promontories jut out sharply. One of them supports a tree, which must soon share the fate of many half-submerged logs. Its isolated position attracts the attention and gives it a kind of personality, and a strange fascination seems to draw the observer, day after day, to watch the closing scenes of its life. The roots become more exposed every week, and present a fantastic network as the soil is gradually carried away from them. Those which still remain deeply rooted in the firm land cling with a desperate hold, until they are almost encircled, and the tree forms a miniature peninsula.

The erect trunk declines slowly towards the river, until almost parallel with the surface of the water. Some of the branches dip into the river, then sink, forming little ripples which murmur a soft lullaby. Branches once horizontal now point upward, waving their greenery bravely, knowing that they, too, must soon be engulfed. Long slender roots reach out in a blind, helpless fashion, and finding no kindly earth to clasp, creep sadly downwards and take refuge in the mud beneath the water. Erosion goes on, until the last particle of earth gives way, and the tree slides into the river. Its trunk is still visible in varying proportion according to the rise and fall of the water, but it has lost caste with its proud forest companions. They stand aloof, rustling their free glad foliage in mockery of its departed glory. Even its name amongst the sons of men is taken away. It is no longer a tree but a snag, the sport of all the floating *débris* of the current. Things which appeared tiny atoms from its former height now assume huge dimensions as they loom upon its watery horizon, striking it insolently as they pass. The scattered foam-flakes ride over it, playing at hide-and-seek amongst the half-submerged branches. It lies there, pathetic in its helplessness, holding out pitiful appealing arms, but it compels something more than our pity. It can still be "glad for what was."

It has grown in slender grace during the slow years, the breezes have sung mystical melodies through the leaves. The birds have built their nests in its branches: it has watched an instinct, kindled by divine love, tending these airy cradles, and has stretched out strong arms to support the feeble steps of the tender birdlings. It has been a city of refuge to some beautiful

furry creature flying from impending death. It has felt, year after year, the strong, mysterious thrill of spring rushing in ecstasy through its frame. It has worn untiring its perennial crown of green whilst the gaunt skeletons of its English brothers were clothed with scanty snow wreaths. It has given its leaves for healing. It has stood age after age, a sentinel on the great river which winds from below Kosciusko's snow, two thousand miles to the sea. Dusky faces have come and gone beneath it: civilised man has claimed the river and the forests; but the sentinel has kept its silent watch. Steamer and barge, and mission launch, and fisherman's boat have passed it. Business and pleasure, age and youth, love and hate, faith and doubt, wisdom and folly have played their drama while it looked down serenely. It has given messages and salutations, and the swift current has been a faithful courier, and has whispered them on distant shores, It has planted itself, majestically strong, during periods of flood, when nature made holiday and spread the water round it for many miles. It has watched indulgently the frolics of the liberated streams in their titanic play-ground. Men have sat under its shadow while it leaned against the sapphire of the sky and looked at the sun. It knows how fair it has been, for often the river has been its mirror and the sunset its torch. Perhaps far away in some dusky busy city it lives upon an artist's canvas, and weary souls, looking upon the picture of shady river-reaches and gum-clad banks, feel the touch of peace, and go away refreshed. It has waved over heroes, who, all unconscious of heroism, tamed their wild horses in the solitary bush, and who went cheerfully to answer the Imperial note of England's appeal. It has accomplished its mission, fulfilled its law. It dies and its place on the Murray knows it no more. But shall the veriest pessimist say of this tree that it has lived in vain?

"*Chorvilla*," *River Murray*, J. M. C.
South Australia, *January*, 1901.

SOMETHING ABOUT ANIMALS.

The Intelligence of a Mouse.

A LITTLE while ago I was watching my tame mice. They were apparently very busy making their bed, for I had put some feathers into their sleeping compartment. One feather, however, had dropped into their run. As I was watching I saw one of the mice come out, and taking up the stray feather, he took it into his private compartment.

The Whale.

The *Mysticetus* carries his nostrils on the summit of the head or crown, the orifice being closed by a beautifully arranged

valve when the animal is beneath the water. Consequently, upon coming to the surface to breathe, he sends up a jet of visible breath into the air some ten or twelve feet. But a whale can no more force water through its spiracle or blow-hole, than you or I through our nostrils.

Sticklebacks.

Last summer, one morning when feeding my sticklebacks (their food consisting of worms), I had thrown a small worm into the aquarium in which I kept them. One end was immediately seized by one fish, and just as the fish was trying to swallow the worm another fish caught hold of the other end of the worm, and a fishy tug of war ensued, in which the weakest fish was compelled to give way, and the other fish gobbled up its prey directly. Another time the same thing happened between two great water newts. When they had both fairly got a grip on the worm, they kept jerking more into their mouths until they met in the middle of the worm, and then they kept on trying to eat more but the one would not let the other. They kept turning over and almost jumping clear of the water, until at last one was compelled to give way when the other swallowed it whole. [The worm or the newt ?—Ed. *N.N.*]

By H. Keith Martin (aged 11).
A junior member.

REVIEWS AND EXCHANGES.

Insect Life: Souvenirs of a Naturalist. By J. H. Fabre. Translated from the French by the Author of "Mademoiselle Mori," with a preface by David Sharp, M.A., F.R.S., and edited by F. Merrifield. With illustrations by M. Prendergast Parker. Macmillan and Co. Price 6s.

The only reason that can have delayed the production of an English translation of the *Souvenirs Entomologiques* of "that inimitable observer" Fabre—as Darwin styled him—must have been a feeling that most Englishmen of taste can at least read French and that a French naturalist—Fabre more especially—is in a great measure untranslateable. As Mr. Sharp says in his brief preface, "If his words are literally translated, they scarcely make English; if freely translated, the charm of his diction is too easily missed." "Fabre's great merit," Mr. Sharp most truly writes, "is his graphic portraiture of the living insect as it really is"; but another great charm of his work is the autobiography scattered through it. He stands in much the same relation to entomology that Gilbert White does to ornithology or Hugh Miller to geology. "Probably no one"—to quote the preface once more—"has ever written on this subject with equal brilliancy and vivacity." So far as we can see, the present translation is eminently satisfactory. The volume deals mainly with the instincts of Hymenoptera; but those who saw Mrs. Brightwen's living specimens of the Sacred Beetle at our last Conversazione, will be glad to read an account of the species here. There are seven series of the original *Souvenirs:* this volume is only a translation of the first. We hope translator and publishers will be encouraged by its reception to give us some more. It is essentially a naturalist-making work, an admirable lesson in that outdoor nature-study which it is so desirable to encourage.

Our Irish Song Birds. By Rev. Charles William Benson. Second Edition. Dublin. Messrs. Hodges, Figgis and Co. Price 5s. net

There is no pretension to science or originality about this little book, the room

for which was demonstrated sixteen years ago by the rapid exhaustion of the first edition. It will serve admirably as a first book for the outdoor student of Irish bird life. As, however, it was well received so long ago we cannot help thinking that this new edition might well have been better. There is no index, and, in addition to three pages actually labelled "Odds and Ends," the Introduction, full of valuable matter as it is, has such an entire absence of arrangement as to deserve the same name. Again, it should be possible by now to replace the calendar compiled from White and Markwick—not, strictly speaking, at Selborne, but at Selborne and Catsfield—by one based on Irish observations. Lastly, the binding seems to us unnecessarily heavy for a book that might well be made a pocket companion. We hope Mr. Benson will note these grumblings against the third edition.

From a Middlesex Garden: a Book of Garden Thoughts. By Alfred H. Hyatt. Prefatory note by the Hon. Mrs. Boyle. With Three Drawings by Mary Tourtel, and other Illustrations. Philip Wellby. Price 7s. 6d. net.

We confess to a feeling of disappointment with reference to this addition to the now numerous books about gardens. The binding is charming, the volume is delightfully light; a beautiful frontispiece raises pleasurable anticipations; as we turn the pages we see many an apt quotation recalling Mr. Sieveking's *In Praise of Gardens*; but many of the three hundred pages are well-nigh blank; there is a great deal of original verse of no very high order, and a series of brief notes in which there is little of garden and less that is distinctively Middlesex. Mr. Hyatt has the æsthetic sense of the poet so that he has naturally many pretty little phrases of his own, whilst his enthusiasm is undeniable and his reading wide, but yet we leave his pages with a sense of thinness.

The Naturalist's Directory, 1902-3. L. Upcott Gill. Price 1s. 6d. net.

There is but little to be said as to the new issue of this invaluable address-book. It follows the excellent model of previous editions and its errors are chiefly those arising from new addresses not having been sent to the publishers.

Report of the Kent and Surrey Committee of the Commons and Footpaths Preservation Society for 1900-1.

Amidst a record of much estimable work accomplished at a very moderate monetary expense, we note with special interest references to Croham Hurst, and the formation, under the auspices of Mr. Keatley Moore and Mr. E. A. Martin, of a new centre at Croydon, to the opposition to the new laboratory in the Richmond Old Deer Park, and to the regulation of Ham Common, and the extension of Brockwell Park, these last illustrated by charming views. Certainly there is no local body in the two counties which more deserves the support of the true lover of his country than this Committee, whose office, by the bye, is at 1, Great College Street, Westminster.

Received:—*The Victorian Naturalist* for November, December and January, *The Naturalist*, *The Naturalist's Journal*, *Science Gossip*, *Humanity*, *The Animals' Friend*, *The Animal World* and *Bees* for January.

NATURAL HISTORY NOTES AND QUERIES.

The Great Bat, or Noctule.—In the early part of last September, at dusk, I observed a great bat, or noctule, fly just over the houses here, and immediately return and disappear. Is not this an unusual proceeding on the part of the noctule? I have always understood its habitat to be amongst old trees, and its "hunting ground" the higher regions of the atmosphere. Anyhow, I have never before seen one in such close proximity to human dwellings.

Buckhurst Hill, JOHN HORNE.
February 6, 1902.

Squirrels Playing Havoc.—Referring to Mr. Edmund Thos. Daubeny's remarks in the February number, I would refer Mr. Daubeny and your readers to the late Mr. W. C. Stillman's letter in NATURE NOTES of August, 1900, in

which Mr. Stillman states that by experiments he had proved squirrels did not eat eggs or damage trees. I may add that Mr. Stillman told me that damage to fir trees attributed to squirrels was actually caused by larvæ. Still less would squirrels interfere with little birds, as Mr. Daubeny alleges.

Cheam, February 11, 1902. C. B.

[I am afraid it is impossible to exonerate the squirrels altogether. I think I remember Mr. T. F. Buxton, of Easenye Park, who lived in the midst of trees and had many bird-boxes, informing me that he had caught them red-handed.—Ed. *N.N.*]

Song Thrush in Winter.—My observations in this neighbourhood do not agree with those recorded in Nature Notes by Mr. Westell at St. Albans. Here in spring, summer and autumn, the song thrush is one of our commonest birds, but during this winter (1901-2), in which I have been taking particular notice, I have only seen this bird on a few occasions.

Hillsborough, Co. Down, Ireland. Nevin H. Foster.
February 7, 1902.

In one of the interesting notes contributed to your last number by Mr. W. Percival Westell, M.B.O.U., the writer states his opinion that the majority of our song thrushes do not migrate in the winter, and that during this winter he has never seen so many song thrushes. For my part I should hesitate to come to this conclusion from such an observation. The thrushes seen by Mr. Westell are doubtless those which have drawn southward at the approach of cold weather, and not the same birds that are seen there in the summer. That more thrushes are seen by Mr. Westell in the winter, as he says, is *proof*, it seems to me, of migration—using the term as a north-south or east-west movement—and not the contrary. It is not necessary to assume that all the individuals appearing in the south of England come over sea, as do such large numbers of those found further north in these Islands. They *move*, nevertheless, and it may be are more in evidence during severe weather, because at that time they draw towards our gardens for food.

With regard to those two members of the same sub-family—not quite so near to the English heart—the redwing and fieldfare, they have not been seen in such large numbers recently in the south-west as during the winters of, say, ten or twenty years ago. Will you permit me to ask if this accords with Mr. Westell's observations?

Shute House, Weston-super-Mare. Thomas Pole.

Blackbird Tapping at a Window.—Two springs in succession a cock blackbird amused himself and me by tapping at a window over my porch. He began early in the morning, and after going on for about an hour stopped for the day. This continued for a week, and was again resumed the same time the ensuing year. I have often wondered at the cause of this. Perhaps seeing his face in the glass he mistook his own likeness for a rival, and set to work to pitch into him. I have heard of many similar cases, but the cause remains in doubt.

February, 1902. Edmund Thos. Daubeny.

Heron eating Bird.—In reference to the note regarding the above in the last number of Nature Notes, I beg to call your correspondent's attention to the fact that the heron is mentioned in "The Wildfowl and Seafowl of Great Britain," by a Son of the Marshes, as eating young birds, especially moorhens. I have myself seen a heron attack the young in a colony of terns in the west of Scotland.

Chesterfield, 67, *Elm Grove, Southsea.* J. E. H. Kelso.
February 8, 1902.

How High Birds Fly.—In the number for February (p. 35), some altitudes at which birds are stated to fly, the greatest named being 9,750 feet, are thought to be "enormous." To me this figure seems not only to be moderate, but I believe that it is often greatly exceeded.

Humboldt, when on a lofty peak of the Andes, saw a condor—whose wings in some instances measure 14 feet from tip to tip—as a mere speck in the sky

above his head. This bird soars "at least 40,000 feet," between seven and eight miles above the level of the sea, and does so commonly when in search of food.

The migratory movements of most birds are probably performed at a far greater distance from the earth than this. Some few species, however, such as starlings, larks, and hooded crows, when migrating hardly ever go up beyond 1,000 feet, and generally keep close to the water. It is difficult to account for the enormous velocity of some birds' flight when migrating. The northern blue throat goes at the rate of 540 miles an hour, flying 4,800 miles from Egypt to Heligoland in a spring night of barely nine hours, "but have only moderate powers of flight." Virginian plover fly from Labrador to North Brazil, "9,600 miles without stopping," going at the rate of "636 miles in an hour, and probably more." How can this speed be attained? It is impossible in the dense air near the earth, and consequently the birds resort to great heights where the resistance of the air is slight, and where there is a state of calm and but little moisture.

In migrating, ring-doves and woodcocks, when invisible, sometimes rush down with a noise like a rocket; snipe do this and stop their downward rush when only a few feet from the ground.

These statements can be verified by a perusal of H. Gätke's "Heligoland," whose figures, I believe, have never been controverted. I purposely curtail these remarks of mine in order to try and induce others to take the matter up, and if possible throw more light on a most intricate and difficult subject.

Market Weston, Thetford. EDMUND THOS. DAUBENY.
February, 1902.

Bees in Winter.—I see by my diary that bees were visiting the winter jessamine on January 23. I am always sorry to find my bees flying about early in the year, for a flight in the cold is the cause of much mortality. This morning (February 14) I saw many deaths. There had been a hard frost overnight, the wind was north-east, and yet in spite of its freezing in the shade my bees were flying about as high as the tops of the trees. Several of them were dead or dying on the drive. My bees being plentifully fed are not in want of food: starvation, then, is not the cause of their activity. They know that spring is close at hand, and are tired of being shut up. Perhaps the mild days we had in January may be the reason of more than usual desire to commence work for the year.

February, 1902. EDMUND THOS. DAUBENY.

SELBORNE SOCIETY NOTICES.

Council Meeting.—The next meeting of the Council will be held at 20, Hanover Square, W., on Tuesday, March 18, at 5.30 p.m.

Annual Meeting.—The Annual Meeting and Conversazione will be held on Thursday, May 29, from 8 to 11, at 20, Hanover Square, W., the President, the Right Hon. Lord Avebury, D.C.L., F.R.S., &c., in the Chair.

The Council will be glad to have the loan of suitable exhibits for the occasion, which will be under the direction of the following gentlemen:—Botany, Mr. L. E. Taylor; Geology, Mr. Ed. A. Martin, F.G.S.; Microscopes, Mr. A. Holte Macpherson, M.A., F.Z.S.; Photographs and other pictures, Mr. A. B. Wilkinson; Zoology, Mr. Basil W. Martin, F.Z.S.

Members and friends willing to assist in this matter are requested to address the director of the department in which they wish to exhibit, care of Mr. R. Marshman Wattson, Dalmeny House, Monument Street, E.C. Tickets will be ready for issue on April 15, and Branch Secretaries are requested to send their applications for members of their branch by that date.

Members requiring tickets should apply to the local Hon. Sec., or in the case of members unattached to branches, to the Secretary, Selborne Society, 20, Hanover Square, W. *A stamped and addressed envelope (not small) must accompany each application.*

It is suggested that a Gilbert White exhibition be held in connection with this Conversazione, and the Council hope that those possessing any relics associated with the naturalist of Selborne, or copies of the various editions of his works,

will kindly volunteer the loan of such objects by writing to the Secretary as soon as possible.

New Members.—Rev. Parnell Jones, Llantheny Skirrid; Geo. Pernet, Esq., Upper Gloucester Place; Miss Laura Yates, Hampstead; Miss Elsie Vaughan, Builth; Edwin S. Russell, Esq., Wimbledon; Miss Stretton, Brockley; Chas. F. Newall, Esq., Wallasey; Miss L. Wright, Halifax; and R. Hastingshus, Esq., Petersfield.

Donations and Subscriptions.—The Council begs to acknowledge with thanks the receipt of the following donations:—B. Blenkinsop, Esq., J.P., 11s.; Sir Jas. Colquhoun, 25s.; and the following subscriptions over 5s.: B. Blenkinsop, Esq., J.P., 10s.; Chas. Burt, Esq., 10s.; Miss Garrett, 21s.; H. E. Luxmore, Esq., M.A., 20s.; H. Harpur Crewe, Esq., 12s. 6d.; Lady Simeon, 10s.

NEWS FROM THE BRANCHES, &c.

Bath.—The Branch is endeavouring to carry out Selbornian principles more scientifically by the formation of three Sections, which will study Bird Life, Insect Life, and Plant Life. Each of these Sections will be limited to twelve members, who are expected to add to the interest of the monthly meetings by reading papers or field notes, by bringing specimens, &c. Rambles in the country will be started in March. The inaugural meeting was held on February 3, when Dr. Norman showed various forms of pond-life with the aid of several microscopes. After the meeting eighteen members were enrolled.

Ealing.—March 10. Public Buildings, Ealing, W. Lecture at 8 o'clock before the Ealing Photographic Society, by William Martin, Esq., M.A., LL.D., illustrated by original lantern slides, upon "Ringmer and Gilbert White; Ringmer as a field for the camera." The President and Council cordially invite members of the Selborne Society. Trams from the Shepherd's Bush Station of the Central London Railway pass the doors of the Public Buildings.

SELBORNE SATURDAY AFTERNOONS.

Saturday, March 8.—Visit Great St. Helen's, Bishopsgate. Meet Mrs. Percy Myles at south side vestry entrance at 2.15. The Rev. J. A. L. Airey, Rector of St. Helen's, has kindly undertaken to conduct the Selbornians. It is proposed to visit the Guildhall after leaving the Church.

Saturday, March 22.—The Zoological Gardens, Regent's Park. Assemble at the main gate, Outer Circle, at 2.15 for 2.30 sharp. Admission free, for Members only, by tickets which will be given out at the gate by Mrs. Myles. Non-members can join on payment for admission. Mr. Bartlett, Superintendent, will kindly conduct the party.

FIELD CLUB RAMBLES.

Saturday, April 5.—Kew Gardens. Meet at the main entrance on Kew Green at 2.15. Guide, Professor F. E. Hulme, F.S.A., F.L.S.

ANSWERS TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., Richmond, S.W.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

No. 148. APRIL, 1902. Vol. XIII.

SELBORNIANA.

Bird and Tree Day.—The Society for the Protection of Birds had a most successful annual meeting on February 26, at which the notion of establishing a day for tree-planting and for promoting bird protection, in connection mainly with our elementary schools, was enthusiastically received. The Society has published two charmingly illustrated and excellently reasoned prize essays on the subject.

Proposed Visit to Selborne.—Dr. Bowdler Sharpe, F.R.S., one of our Vice-Presidents, than whom no one is better acquainted with Selborne and its associations, has kindly offered to conduct a party of the Society—provided not less than thirty promise to attend—to this Mecca of English naturalists on one of the Saturdays in July. The cost, including fare from London, carriage and meals, will be about a pound a head.

Nature-Study Exhibition.—It has been decided that this exhibition, of which we spoke in our last issue, is to be held on Wednesday, July 23, and following days, at the Gardens of the Royal Botanic Society, Regent's Park. As many of our principal educational bodies have promised their assistance, a very instructive collection will probably be got together.

BURNHAM BEECHES AND THE RECENT THINNINGS: A VISIT OF INSPECTION.

THE valley of the Lower Thames was shrouded in fog as we took the train to Windsor on March 1, so that our eyes were not offended by the hideous line of the Staines reservoir. No greater contrast could well have been designed than that between the monotonous level country on the borders of Middlesex and Buckinghamshire and the woodland in which one finds oneself at Burnham. Turning our backs on the majestic pile that towers over the royal borough, we drove through the narrow High Street of Eton, quaint with its many signs and full of the associations of learning, out into the fields, where larks were soaring and blue-tits and chaffinches flitted about the hedges beneath the tall elms trimmed as if to emulate Brussels sprouts; and here, as elsewhere between this district and Hampton Court, we noted amid the bare boughs the wealth of mistletoe, growing on several different species of tree and almost recalling its abundance in Normandy. Passing many an interesting old house with fine cedar and quiet garden; passing that not very noticeable elevation, Salt Hill, where—alas—the sacred, ancient rites of "Montem" are only represented by a "building estate" of brand-new villas; passing the pretty village pump of Farnham Royal and that comfortable little hostelry, the Crown Hotel, we find ourselves on an open heath, and are at "the Beeches." Heather and bracken now dull in hue, diversified by many a deep green furze-bush, tell of the gravel and clay of the soil, while many a juniper bush, some of them of fine size, indicates the existence, as a subsoil, of the Chalk, which rises to the surface in the neighbouring river-cliffs of Cliveden and Windsor. Self-sown Scots firs and birches dot the margin of this heath or advance on to it in small clumps, and here no one would regret their presence or even their increase, lending as they do a charming diversity to the scene.

We secured the services of one of the keepers as our guide, and very soon, leaving our vehicle to follow round by the road, we are wading knee-deep through the heather towards the first of the ancient pollard giants that stands near the head of the Upper Fish-pond. Here it is that we see the first signs of the cutting of which we have heard so much in the newspapers of late. A good number of birches have been cut down to give room to this grand old beech; but neither here nor anywhere else did we see those stumps measuring 40 in.—presumably in circumference—to which "E. M. R." alludes in the *Spectator*. To the felling of one tree at this spot we did take exception, and to one only, an oak which divided close to the ground into four stems, each measuring about three inches in diameter, and which we were assured had been a scrubby specimen. This had

been removed to give a better view of the fine old beech from a neighbouring path—a reason partaking, to our minds, far too much of landscape gardening. At the same time, I would at the very outset protest against the notion put forward by the editor of the *Spectator* that in the conservation of such semi-primæval woodlands it is practicably possible to act—or rather to desist from all action—according to the spirit of Lord Melbourne's question, "Can't you leave it alone?" The Corporation have acquired—practically as a public trust—a lovely bit of woodland and heath, rich in its variety of trees, but specially celebrated for a small number of magnificent old pollards, chiefly beech. This beauty spot, being within reach of the metropolis, has become a holiday resort, and one cannot but be glad that Londoners should have such an object-lesson in the charms of true sylvan scenery. Its many picturesque aspects, but especially its larger trees, have at the same time naturally attracted many of our best landscape artists, one of whom, we have heard, has actually boasted that he has made, by pictures of Burnham Beeches, more money than the Corporation paid for the estate. If this area had been left to itself in the past, it would be an impenetrable thicket of crowded, worthless birch, hiding and smothering the old pollard beeches, and diversified only by quagmires or open heathy spaces cleared by accidental fires. Beautiful as is an isolated, well-grown birch, pleasing as is a group of fine trees of this species, such as that on the north side of the Middle Pond, it is the universal experience of foresters all over Europe that the birch requires keeping in check or it will prove destructive to other species. The shallowness of the soil at Burnham Beeches apparently limits the life of the birch. There are no very large or old trees, few much exceeding a foot in diameter, and many of the largest are dead or largely rotten, riddled with the holes of the woodpecker and protruding many a large specimen of the shelf-fungus (*Polyporus*). Many of the stumps of birches recently felled proved, on examination, to be thus rotten. At the same time, no species of tree sows itself more readily, springs up sooner after a forest fire, or holds its own better against heather or bracken, while not many broad-leaved trees are more rapid in their growth. We saw several birch groups which were thinned sixteen or twenty years ago, and which were certainly more beautiful now than they would have been had there been twice as many trees to the acre. On the other hand, we noticed at least two spots, one south-west of the Middle Pond and the other towards Hardicanute's Camp, which have not been touched in the recent operations, and which would be all the better if the trees were reduced by a half.

Besides the old beeches, there are several grand oaks, whilst, as is so generally true in all our indigenous woodlands, such as the New Forest, the Forests of Dean and Kingswood, and Theydon Garnon, adjoining Epping, the holly not only forms

a conspicuous part of the undergrowth, but in many places stands alone as a fine "specimen" tree. The Corporation have had the advantage of the experienced advice of Mr. H. J. Veitch, who resides in the neighbourhood, and we were informed that it was on that advice that one good-sized beech had been removed that interfered with an old oak, with a large holly beneath it, near the lower end of the Middle Pond. Such cases call for the exercise of much thought, and are subjects on which expert opinion may well differ.

Between the Elephant Tree and Middle Pond there has been a good deal of thinning, mainly to give room to some young shapely oaks that promise, thanks to this care, to develop into fine trees; but in no part of the woodland has a quantity of beech or oak been cut, nor is there any need to fear the extermination of the birch. Possibly some critics have mistaken the considerable area of private beech-wood, managed on purely commercial lines, which runs into the heart of the public woodland and is only separated from it by an earthen dyke, for part of the area under the control of the Corporation. On this area a good deal of fine beech has been recently felled.

We noticed that there is on the whole a better supply of promising young oaks than of sapling beeches, so that these latter should be most carefully tended, and, if planting is to be carried on, this species should be preferred, though a few additional yews—there is only one, I think, at present—would lend a pleasing and thoroughly English variety. On the other hand, the rhododendrons, which were planted before the Corporation came into possession, seem lamentably out of place, and serve only to entail additional anxiety upon the keepers when they are in blossom, this blossom, holly when in berry, and moss being the chief subjects liable to depredations.

From what I saw it was difficult to believe the statement that "all the charming brushwood and undergrowth is being cleared away with the trees." I was assured that this was not so, and I certainly saw ample cover remaining for any possible supply of birds or insects. Undoubtedly any such removal of undergrowth not interfering with the large trees would be a most mistaken policy. On the other hand, it is difficult to imagine that any one who has visited the spot can suggest, as some have done, that the clearing has been such as to expose the old trees to any great danger from wind. Only in one place could such a suggestion be in the least maintained, in the case, that is, of the large beech first mentioned, near the head of the Upper Pond.

On some of the open spaces commemorative trees have been planted by members of the Corporation. These have been—perhaps unnecessarily, in the absence of deer or cattle—elaborately protected by ironwork and somewhat cockneyishly labelled with iron inscriptions. Still more obtrusive, and, perhaps, equally unnecessary, are the large iron name-plates to the various "drives." Some of these last lead to the private

ground already mentioned, and, therefore, their construction may have been inevitable; but in that case the old English sign-*board*—and as few of those as possible—would have been less suggestive of the suburban "park."

These minor defects of taste—all easily removable—are, however, nothing compared to the gravest and most wanton disfigurement of the most beautiful parts of this beautiful region which the Corporation has permitted. This has emanated from the very class that should be the very foremost in protecting beautiful scenery from desecration, from the class on whose behalf part of the outcry against the management has been raised—the artists. Some ten or a dozen artists have, in exchange for a half-crown license and a weekly rent of sixpence each, obtained permission to put where they please hideous bathing-machine-like huts to hold their paraphernalia. There is one of these eye-sores at each end of the Middle Pond, spoiling every view of that lovely pool. The artist, in "composing" his picture, can omit these: the general public, wishing to enjoy a sylvan landscape, cannot. Some other huts are slightly more hidden; but the whole principle is an atrocity, and these licenses, merely to save the pockets of ten or a dozen individuals, who might otherwise have to have their canvases brought to the ground daily, should be immediately revoked.

Fortunate it is that these mistakes in management are all such as can easily be rectified: had valuable trees been destroyed this would not have been the case.

G. S. Boulger.

THROUGH CENTRAL AUSTRALIA.

By Right Rev. Gilbert White, M.A., Bishop of Carpentaria.

[*Introductory Note.*—The Bishop has just completed a long and arduous journey through part of his immense and little known diocese, starting at Port Darwin in the extreme north of the Australian continent, coming down through the dry and arid interior, visiting *en route* the isolated stations of the overland telegraph line and the aboriginal camps, finally reaching the northern terminus of the railway and proceeding by rail to the fair city of Adelaide. Such a trip, through country almost devoid of civilised inhabitants, necessarily involved spending a great many nights under the stars, and living much upon damper and tea, varied by tea and damper. The Bishop, however, kept in splendid health all through, and after a brief visit to Tasmania is now again in the tropical climate of the north. He has, although much pressed for time, been kind enough to write a brief paper upon the nature aspects of the country through which he passed, for the benefit of our Selborne maga-

zine, and this paper will, I feel sure, be read with keen interest in England.—H. Stuart Dove.]

It has been suggested to me that your readers might be interested in some natural history notes on a journey which I have just completed from Port Darwin in the north, through Central Australia to Adelaide in the south. The journey, which was on horseback and driving, took ten weeks, and the distance traversed from railway to railway, 1,300 miles. Including the telegraph offices, I was only able to camp under a roof ten times. The journey was intensely interesting, the geological formations being in many places peculiar, and the trees and flowers to a large extent not found in other parts of Australia. I can only in the short space at my disposal give a few brief disjointed notes. Among the flowers I was especially struck by the red *Calythrix* bush which blooms beautifully in their poor soil to the north and the large red everlastings which carpet acres of ground on the ridges and afford good feed for the cattle and horses. There are no less than four fine scarlet flowered trees with edible beans, one of which, *Erythrina vespertilio*, is remarkable for its cruciform flower stems and curiously shaped leaves. Another, the name of which I do not know, strongly resembles, at a little distance, the *Pyrus japonica*, but the surface of the petals is covered with fine filaments. The red *Loranthus*, a kind of mistletoe, covers the "mulga" trees in places with huge nests of pale green and red, and there is a fine holly growing on the Ashburton Ranges with a leguminous flower (*Chorizema ?*). The red of the various flowering trees is relieved by the brilliant yellow of the "cotton-tree" (*Cyclosperuum*), and in the sandy deserts the ground is covered with the beautiful pink flower of the Paratsyllia (?) the juicy leaves of which will support cattle for months without water. In what is known as the fifty-mile desert, I found the whole ground covered with the dark green glossy leaves of the wild yam, to obtain which the natives dig countless little holes about two feet deep. They store the yams in mounds covered with sand. One of the most striking flowers I found at Powell's Creek, where it grew in profusion, the *Crotalaria Cunninghami*. The brilliantly green blossoms give it a most uncommon appearance. Spinifex or porcupine grass grows everywhere, even in pure desert sand. Stock will eat it when young enough.

It is curious to note how the vegetation adapts itself to the rainfall. At "Alice Springs," just in the centre of Australia, the annual rainfall is some six inches, and the grass after a fair fall of rain will last for *two years*.

A very magnificent red water-lily grows in the swamps about thirty miles from the Elsey Station, but unfortunately I was not able to visit them. The roots of the various water-lilies form the chief food of the blacks. At Alice Springs they grind

together the seed of a grass closely allied to the Flinders grass with a tiny black seed called "Münyeza," and bake dampers therefrom, one of which I was fortunately able to obtain.

Of animal life there was not much to be seen. The great "eagle-hawks" (Wedge-tailed Eagle, *Urocetus audax*) were very plentiful, but considerable tracts of country were too dry and desolate even for them. The most plentiful tracks on the sand were those of a large centipede which leaves little parallel rows of holes resembling the mark of a cogged wheel. Curiously enough one of the great enemies of the overland telegraph line is the common green frog (probably *Hyla ewingii*). In order to save the insulators from being broken by the lightning they are provided with wire "droppers" leading round them at a little distance to conduct on to the iron pole in case of need. The frogs climb the poles and find the insulators cool and pleasant to their bodies, and fancy that the "dropper" is put there to furnish them with a back-seat. After a nap they yawn and stretch out a leg until it touches the pole—result, sudden death of the frog, and as the body continues to conduct the current to earth we have a paragraph in the papers to the effect that "in consequence of an interruption to the lines probably caused by a cyclonic disturbance in the interior, we are unable to present our readers with the usual cables from England!"

The flies are a pest beyond all conception, for although it was winter they swarmed in myriads and made life a burden. I was obliged to sketch or write with one hand and fight them all the time with the other. Often on arriving in camp we were obliged to creep under a mosquito-net and wait for sunset before we were able to do anything at all.

The blacks use the pure dingoes as dogs. I saw one carrying a bandicoot (*Perameles*) in its mouth for its master, who wishing to show it to me, pinched the dingo's hind leg, causing him to turn and drop his burden almost at his master's feet. Dingoes never bark, although half-bred dogs do.

Magnificent rugs are made from the skins of the "Euro," a kind of kangaroo found near Alice Springs.

The central country is subject to fearful droughts, and the track of the overland telegraph is marked by the graves of men who have died of thirst, often having passed close to water without knowing it. I suggested to the South Australian Government the desirability of putting up iron direction boards on the telegraph poles. These would save many lives.

When I passed Lake Woods it was a grand sheet of water ninety miles in circumference and covered with wild fowl, but for five years previously it had been dry, and one of my party had seen it a mass of flame from the burning grass. When Sturt first discovered it he did not suspect that it was a lake, and it was entered in the maps as a plain. When the trial survey for the telegraph line reached it they were in extremity

for water. One of the party on reaching the summit of the Ashburton Range said, "Why, there is a big lake!" The rest laughed at him—told him that it was a mirage on Sturt's Plain. They searched all next day in vain for water, and at length the man said, "Mirage or no mirage, I am going to see." He went, and found a beautiful fresh-water lake twenty miles across.

Near Powell's Creek the ground is covered with agates and jaspers, many of the pebbles being extremely beautiful. At Renner Spring is a mountain of quartzite which is the great quarry for aboriginal knives and spear-heads. Some are made of opaline quartz, others very beautifully of glass or broken insulators; these last are scarcely distinguishable from the opaline quartz. Stone axes are now very rare, but I was fortunate enough to obtain three.

In the Davenport Ranges there is an amphitheatre of quartzite hills, in the centre of which a space of a mile square is filled with gigantic granite boulders, many of them almost perfectly spherical and from ten to five-and-twenty feet in diameter. These huge blocks have a most weird appearance and are known as the Devil's Marbles.

The Central Australian natives are a finely-made race, the men are handsome and active, the youths distinctly Italian-looking, while the men have bushy black beards and strongly Jewish features.

On the Fincke River the cliffs are composed of layers of red and yellow and pink sandstone with white gypsum and very thin layers of black ironstone, the effect of which is marvellously brilliant.

Not more than one-third of the country traversed was of any use for pastoral purposes.

[I am indebted to the Curator of the Sydney Botanical Gardens for many of the names of the plants.]

NOTES ON LONDON BIRDS IN 1901.

THE following notes are a continuation of those which have appeared for some years past in NATURE NOTES, and relate chiefly to Kensington Gardens and Hyde Park.

On the afternoon of January 28 I was going down Piccadilly on the top of an omnibus and snow was falling. A woodpigeon was sitting on her nest in Green Park close to Walsingham House. My sister saw one sitting on a nest in Hyde Park, near Park Lane, on February 7. With a little diligent search I expect that the London woodpigeon could be found nesting in every month of the year.

During the first week of February a dabchick was to be seen daily on the Serpentine. On February 11 a missel thrush was singing in Kensington Gardens. The weather towards the end of this month was cold, and on February 23 I saw a magpie strutting about on the ice near the island in the Serpentine.

One morning in March I witnessed a terrific fight in Kensington Gardens between two moorhens. The birds began by fighting just like a pair of gamecocks; but after a time they both relapsed into a sitting posture, leaning back and supporting themselves by their wings, while they struck out at each other with their feet. I could not wait to see the finish. Neither bird appeared to do much damage to his opponent.

I was out of town at Easter when the spring migrants were beginning to arrive. My sister saw several wheatears on April 7 in Kensington Gardens. On April 9 I heard the redstart, willow wren, and chiff-chaff singing there, and saw all three species; and on April 10th I found a common sandpiper close to the bridge over the Serpentine. Near this same bridge, on April 25, I had rather a curious experience, for I nearly stepped on a budgerigar—the Australian grass parrakeet—which was so busy feeding on the ground that it did not notice my approach. Escaped cage-birds are not infrequently seen in our London parks.

In May the reed warbler was heard on the 18th singing on the Island; on the 19th several cuckoos were flying about Kensington Gardens; on the 21st the spotted flycatcher appeared, and on the 27th swallows. In August I saw some young flycatchers, but I do not think that many pairs nested successfully, although a good many birds of this species were to be seen in the Gardens throughout the summer.

About the middle of June several swifts frequented the Serpentine for several days, and once or twice I saw the pied wagtail near the water. A pair of moorhens built a nest under one of the fountains in Kensington Gardens in the same place as last year, but I doubt whether any eggs were laid in it, for they shortly afterwards commenced to build another nest in an adjoining pond. The new nest was in a circle of wire netting which had been erected to protect some water-lilies. I first saw this nest on July 20, and on the morning of the 25th an egg had been laid in it. Although there was a tremendous downpour of rain on that morning, the bird was sitting on the nest when I went to look at it in the evening. I had a look at the nest almost every morning and evening from that time until August 16, when I went out of town for three days, and always found the bird sitting. On the evening of August 19, however, she had left the nest, in which only the one egg was visible. The birds, however, at once set to work to build another nest in a similar circle of netting in the next pond, and on August 27 this nest had three eggs in it, but apparently no serious attempt was made to incubate them. A few days after this I left town for a holiday and do not know whether any more eggs were laid.

On July 28 I saw a heron flying over Kensington Gardens: a chaffinch was singing in the middle of Hyde Park on August 6. On the 23rd I put up another common sandpiper close to the Serpentine bridge from exactly the same spot as the bird noticed in April. This is the only occasion upon which I have seen this bird in a London Park in autumn, though it is observed fairly regularly on the spring migration.

On August 27 a large number of sandmartins were flying over the Long Water.

Twice during October I heard a brown owl flying down this street in the evening at about 11 p.m.

Thrushes were very quiet in Kensington Gardens during the autumn. I heard one trying to sing on Campden Hill on November 13; but there was no general chorus of thrushes until December 3, since which date they have been singing regularly.

On December 14 I saw a kingfisher near the fountains in Kensington Gardens, and six days later I found probably the same bird floating dead on the water to the east of the bridge. The thermometer was standing at about 25° Fahr., and most of the surface of the Serpentine was frozen. The bird was very thin and had probably died of starvation: it had not been dead very long. I managed to obtain it by the aid of an umbrella without wading very far into the water.

A. Holte Macpherson.

51, *Gloucester Terrace*,
Hyde Park, W., January 7, 1902.

REVIEWS AND EXCHANGES.

Birds' Nests: an Introduction to the Science of Caliology. By Charles Dixon. With illustrations by A. T. Elwes. Grant Richards. Price 6s. net.

How many of our readers can honestly say that they had any notion what "caliology" meant before reading this title? That it is, if not a very distinct science, a very suggestive department of ornithology, more especially appertaining to avian psychology, Mr. Dixon clearly shows. We were surprised to learn from him how limited is the literature of his subject, James Rennie's "Architecture of Birds," the Rev. J. G. Wood's "Homes without Hands," and Dr. Alfred Russel Wallace's classical essay on the "Theory of Birds' Nests," practically exhausting the list. Any one who is acquainted with either of these will be glad to have a systematic treatment of a subject so intelligible to the most unscientific of "general readers" from the pen of such an acknowledged authority as Mr. Dixon. Beginning with nestless birds, including "parasites," such as the cuckoo, the author passes to the crudest nest-forms and then deals in succession with concealed or covered, open, domed and roofed and pendulous nests, ending in truly Darwinian fashion, with a *résumé* of his entire argument. The whole forms a fascinating chapter in the discussion of so-called "instincts."

Bird Hunting on the White Nile: a Naturalist's Experiences in the Soudan. By Harry F. Witherby. "Knowledge" Office. Price 2s. 6d.

It is a good many years since we read the late Dr. Leith Adams's "Naturalist's Journal in Malta and the Nile Valley," which was the account, so far as

Egypt was concerned, of a mere excursion to the lower part of that valley which Mr. Witherby has had the opportunity of following up farther towards the source of Old Nile; but the earlier work compares, we think, favourably with the later in its more philosophical grasp of biological problems. It must, however, in fairness be stated that this is professedly a popular account written for the pages of our ever-interesting contemporary, and that the author has published further scientific details in the *Ibis*. The route extended about two degrees south of Khartoum, and three new species of mammals, one bird, *Cisticola aridula*, and a flea, proved to be new to science, whilst nearly 150 species of birds—the main objects of the journey—are recorded in an Appendix as having been observed. The snap-shots, not very well focussed, do not add much to the value of this slight but interesting sketch.

Plant Relations, a first book of Botany, Second Edition, and *Plant Structures, a second book of Botany*. Both by Prof. J. M. Coulter. Twentieth Century Text-books. Hirschfeld Brothers. Price 6s. net, each.

Some months ago we reviewed in these pages a text-book by Prof. Coulter, entitled *Plant Studies*, which is an amalgamation, in some 390 pages, of these two volumes, which contain about 260 and 335 pages respectively. We do not quite see how this was done, but we notice that the second of the two volumes now under review contains chapters on the food of plants, the evolution of sex, the flower, differentiation of tissues and physiology, which are not in the abridgment. For secondary or high school work these volumes are admirably adapted, more especially from their wealth of excellent illustrations; but they hardly reach what we would fain hope is the standard of our universities. Professor Coulter's introduction of ecology or bionomics before anatomy, gives a freshness to his whole view of the science, which is most stimulating.

A Text-Book of Geology. By Professor A P. Brigham. Same series, publishers and price.

Consistently with the plan adopted by Professor Coulter, in his botanical works in this series, the author of this excellent and well illustrated text-book begins with the more obvious and attractive department of the science, viz., dynamics, which occupies 190 out of about 460 pages. Petrology is very briefly treated, geotectonics and physiography only a little less so, and palæontology only incidentally in the historical portion, which occupies 173 pages. We should much like to see a larger work by the same author, in which the second, or as he terms it, "structural," part should receive at least equal space to that accorded to dynamics and stratigraphy. The illustrations and the spelling, as in "bowlder," "paleozoic," &c., are American; but this does not affect the value of the first part of the work to English students; and, though by no means written down, it could well be used as a first book.

The Foraminifera: an Introduction to the Study of the Protozoa. By Frederick Chapman, A.L.S., F.R.M.S. With numerous illustrations. Longmans. Price 9s. net.

It has seldom been our good fortune to come across so thorough and complete an introduction to the study of a large group of organisms as is this by no means large or expensive work. The history of our knowledge of the *Foraminifera*, their anatomy and physiology, a systematic account of all the genera, with mention of type species, an account of their range in time and in space, and of methods of collecting and examining, with a copious bibliography, and an Index which has the novel feature of including the specific names, make up an admirable piece of work. Fortunately, *Foraminifera* lend themselves to inexpensive methods of illustration, so that we do not think that so heavily surfaced a paper need have been employed; but this is our only complaint.

The Humane Year-Book and Directory of Animal Protection Societies, 1902. T. Clemo, 22, Glasshouse Street, Regent Street, W. Price 1s.

The third annual issue of this directory, so indispensable to all actively engaged in humanitarian work, contains summaries of recent legislation and other useful matter in a very handy form.

Society for the Protection of Birds. Eleventh Annual Report, 1901.

This seems an altogether satisfactory report of a good year's work. The democratic twopence for registration, and still more the shilling subscription for Associates, finds ample justification in a roll of over 4,500 Associates, though it seems a pity, if registration means what its name implies, that the Report is unable to give the total membership. The Balance Sheet, showing an ability to invest £250 in the year, and no undue proportion of working expenses, seems also satisfactory, though we own to the hope that the next will show a yet larger expenditure on watchers. Of the value of the Society's work it is needless to speak here.

Haileybury Natural Science Society. Report for 1901.

This is an unpretentious record of good work. A membership of 150 is decidedly encouraging; but the proportion of workers, as usual, does not appear to be large. The comparative completeness of a small but business-like Museum is a subject for congratulation, while the notion of a prize for knowledge of bird-song is a most valuable one.

Report of the Hampstead Scientific Society, 1901.

We sincerely hope that this Society has not, to use an expressive Americanism, "bitten off more than it can chew." Its programme is certainly most ambitious; but if it maintains its present rate of progress it may yet continue to offer its subscribers its present handsome return for a low minimum subscription. We have to condole with our friends in the loss, since this Report came into our hands, of their illustrious President, Sir Richard Temple.

The American Society for the Prevention of Cruelty to Animals. Thirty-sixth Annual Report.

The parent American Society has reason to be proud of its many daughters throughout the United States. Its Report is satisfactory, but we read its monthly journal, *Our Animal Friends*, with greater pleasure, since the executive persist in illustrating every annual report with revolting photographs of the victims of the cruelty against which they war. Does this serve any good purpose?

Devonia. United Devon Association Directory and Visitors' Gazette. No. 1, February—March, 1902. Price 2d.

Fair Devon has adopted the American motto:—

"Early to bed and early to rise
Will do you no good if you don't advertise;"

and is apparently intending to issue this new journal seven or eight times a year. The first number strikes us as more suited for gratuitous distribution among those benighted people who know not Devonshire, than to interest Devonians, and we would therefore urge upon its promoters the desirability of a series of papers on Devonshire subjects, treated in such a manner as to add to the natives' knowledge of their lovely country. Much of the most energetic part of the work of the United Devon Association is distinctly Selbornian in character.

The Humanitarian (*with which is incorporated "Humanity"*), *the Journal of the Humanitarian League*, vol. i., No. 1, March. Price 1d.

We congratulate our friends on being at length able to assume for their Journal the title which naturally belongs to it.

The Country. Edited by Harry Roberts. No. 1, March, 1902. Messrs. Dent and Co. Price 6d. net.

We welcome this beautifully-got-up monthly, devoted to the life, sports and industry of the country. The frontispiece is a capital portrait of Dean Hole, and there are, *inter alia*, well-illustrated articles on John Parkinson by Mr. A. F. Sieveking, and on the Privet Hawk-moth by Mr. W. F. Kirby, and a drawing by Mr. Railton of Moreton Hall. We will only venture to make three slight suggestions: (i.) The "Contents" on the wrapper should have references to

pages; (ii.) scrappiness should be avoided—the items, including the illustrations, do not average a page each; and (iii.) names and titles will never prove a substitute for good literary workmanship.

Received:—*The Victorian Naturalist* for February, *The Naturalist*, *The Naturalists' Journal*, *The Irish Naturalist*, *Science Gossip*, *The Animals' Friend*, *Our Animal Friends*, and *The Animal World* for March.

NATURAL HISTORY NOTES AND QUERIES.

Pig Playing Patience.—My pig has invented a game of her own. There are four stones the size of an egg in her iron trough, with which she plays by the hour together. She picks them up in her mouth one after the other and lets them drop again into the trough. The stones are worn smooth by the performance, which has gone on for months.

March, 1902. EDMUND THOS. DAUBENY.

Polecats.—In answer to a question of mine, a neighbouring naturalist writes:—"As to polecats, 'foumarts,' as they call them in the North –foulmarts—there are many more moving about than we know, as is the case with all nocturnal feeders. I have heard of none about here. They are not uncommon in the North. My eldest son in Lincolnshire some little time ago, had a live polecat, stoat and weasel, brought in one bag, one day! The man knew he was interested in such things!!"

Market Weston, Thetford. EDMUND THOS. DAUBENY.
March, 1902.

Squirrels Playing Havoc (p. 57).—Having already exposed the squirrel's "evil ways," in an article in NATURE NOTES, for April, 1901, I will not again bring up the question, beyond saying that if C. B. will look it up thoroughly he will find that the injury done by squirrels to trees and plant life is notorious. No accurate observer would confound the damage done by squirrels with that "caused by larvæ."

One of the most practical ways of increasing the numbers of our songsters, such as the nightingale, blackcap, white-throat, and others, is to thin the ranks of squirrels. They are veritable tyrants among our little birds, and should be kept in order like their first cousins, rats and mice.

Market Weston, Thetford. EDMUND THOS. DAUBENY.
March, 1902.

Do Squirrels Hibernate?—Until five years ago I had never seen a squirrel in the wild or natural state, and had the impression that they were hibernating animals, an impression obtained from books on Natural History, and also from hearsay, and which appears to be a popular impression. Since then I have seen many squirrels and am inclined to believe that my former opinion was preconceived and erroneous. I have seen them in Epping Forest in every month of the year, generally as solitary individuals, but sometimes in pairs, and on one occasion as many as three together up a tree; in fact, I have seen more in the winter than in the summer months; not that I believe they are then more numerous, but the trees being leafless the conditions are more favourable for observation. I have also come across them under all the different atmospheric conditions our climate is subject to, even with snow upon the ground and a hard frost prevailing. If they hibernate, why should they leave their cosy nests in such inclement weather? No, I am loth to believe in the hibernation theory in respect to these interesting and pretty little rodents, as it is quite antagonistic to my personal observations.

Buckhurst Hill. JOHN HORNE.
February 20, 1902.

Hedgehogs and Eggs.—Some years ago, not being able to account for the disappearance of eggs, a wire cage trap was set in the fowl run. After a little time this was occupied—not by a rat, but a fine hedgehog filled to its utmost capacity the trap. It was re-set, to be filled in a few days by Mrs. Hedgehog! No more eggs were missed.

Newton Mumbles, Glam. MARIE G. MAINWARING.
February 16, 1902.

Wholesale Poisoning of Birds.—A neighbour writes to me in distress. He says that "during the last two or three weeks there has been a great deal of poisoning of wild birds here, and all around me. I have lost my rooks, and would not have lost them for £50. I understand the bulk of the poisoning in this parish and all around has been done by a man, who when spoken to about the unlawfulness of poisoning, said he did not care a —— for the restrictions. What with cutting down all the trees and poisoning the birds, and shooting every head of game, the farmers, some of them, are getting beyond all bounds. All sorts of little birds, as well as rooks and pigeons, have been slaughtered in great numbers."

This poisoning has been carried out on farm after farm, at the invitation of the farmers, who have employed the professional poisoner mentioned in my neighbour's letter. The man has attacked the poor birds during the severe weather, when they were starving, and congregated in clouds at the sight of food of any kind. I hear of half a sack full of dead birds collected in one place, in another of forty dozen, and so on. Numbers must have flown away to die, and are not included in this list of wholesale murder. It is a sad tale of woe. Would it were an isolated experience. I fear it is not.

The readers of NATURE NOTES are too well acquainted with the habits of the rook and other common birds, to need the question of their usefulness being raised in its pages for their benefit. I cannot imagine a more foolish policy among agriculturists than to persist in destroying those friends that spend their lives in fighting for them. The farmer who thus uses poison sometimes does himself disservice he little dreams about. A man I know scattered poisoned wheat on the paths of his garden to kill sparrows. His fantail pigeons died, which he had carefully shut up for a week, and then released when he thought all the poisoned grain had disappeared. This was bad enough. But there is worse to tell. Some of the sparrows fell dead in the farm yard; these the pig ate, and she died too. If he had kept cats they probably would have shared a like fate. The use of poison requires great care. I have only employed it to get rid of rats. My custom has been to place it in a room or outhouse that can be locked up, anything left next morning being carefully removed and burned.

One of the strangest cases of poisoning I ever heard of came before a bench of magistrates on which my father sat many years ago. An estate owner dismissed a keeper, who in revenge hung up a poisoned rabbit in the place where his pheasants were fed. The gentles which fell from the rabbit were eaten by the pheasants, and numbers died. It is curious to note that gentles will thus communicate poison to other creatures without being poisoned themselves.

Market Weston, Thetford. EDMUND THOS. DAUBENY.
March, 1902.

How High Birds Fly.—In my remarks on p. 59 allow me to correct the word "*controverted*," and to substitute *proved to be wrong*.

March, 1902. EDMUND THOS. DAUBENY.

Nesting Boxes.—On taking down and clearing out yesterday a number of nesting boxes which I had distributed in various parts of my garden, I opened one, of four compartments, which had been slung on wires in a clump of trees at some distance from the house. Two of the compartments were empty, and the remaining two contained nests, made last spring. In each of the latter, and partly buried in the nesting material, I found a dead wren. They had, no doubt, crept in for warmth and shelter, and fallen victims to the hard frosts and stormy weather of last month. Probably numbers of these little creatures perish in holes in hedge roots and elsewhere at such times and are never found.

Should any of our readers wish to amuse themselves in the delightful and interesting occupation of making and erecting nesting boxes, I can strongly recommend them to get "Wild Bird Protection and Nesting Boxes," of John R. B. Masefield (Taylor Bros., Leeds), reviewed in NATURE NOTES some time ago. W.

March 8, 1902.

Birds and Berries.—In "The Country Month by Month," by J. A. Owen and G. S. Boulger, reference is made to berries eaten by wild birds. A quotation from Lord Lilford runs as follows, "I know very well that in severe weather, many birds are driven to feed upon holly berries. . . . I want to find out what birds habitually devour under ordinary circumstances," p. 20-21.

Now from personal observation I have found that song thrushes and the rarer missel thrushes, eat freely holly berries, a small holly tree in our garden being stripped of its fruit in the mild open weather of late autumn. The missel thrush also likes yew and rowan berries. Blackbirds sink with outstretched wings upon bushes too slender for comfortable perching, and devour the black berries of the bay, and hard unfleshy laurustinus berries. Wood pigeons also are very fond of the former. The rose hips, as soon as soft, hang sucked flat by the birds. In autumn, too, I was surprised to see a robin eating myrtle berries from an old tree, grown, by-the-by, from a slip given by John Evelyn's family in a wedding bouquet, to an ancestress of mine. The foregoing remarks tend to show, I think, that wild birds readily feed on berries and fruit also, though able at the same time to procure their ordinary diet.

E. G. WOODD.

Hampstead Birds.—Although many of the thick copses and quaint old-fashioned gardens, characteristic of "Old Hampstead," are being swept away by the builder, yet the town and neighbourhood still remain a favourite resort of many kinds of birds. On January 3, of this year, a flight of waxwings (*Bombycilla garrula*), consisting of more than a dozen birds, was seen on the West Heath, near the Kite Pond, and there were subsequent observations of them at Golders Hill, the enclosure of some forty acres adjoining the Heath. It is twenty years since I glimpsed waxwings in this locality. Among other species observed during this winter have been snow-buntings, cirl, and the common yellow ammer (the last a permanent resident, and building on the Heath), as well as bramble finches, siskins and red-poles. Near one of the ponds—for prudential reasons I refrain from indicating which—a kingfisher has taken up its abode, and on several occasions, to the delight of the owners, has appeared in gardens not far away; close here, too, a snipe or two are sometimes seen, while to the ponds, where wild ducks have for years made their home, seagulls and divers occasionally come. Hampstead is a special resort of song thrushes, and all through the winter, including each day during the hard weather of last month (February) the beautiful notes of these melodious songsters might have been heard. There can be no doubt that thrushlings of the previous spring—as do also blackbirds and other species—migrate with the autumn. Were this not so, thrushes and others of their kindred, which have at least two broods in the spring, would soon become almost, if not quite, as numerous as house-sparrows. When living near the east coast in Kent, I used to observe every autumn large flights of thrushes and blackbirds, chiefly young birds of the previous spring, congregate before departing from our shores across the sea, hundreds and thousands of which perhaps never return.

Hampstead. JAMES E. WHITING.

March 3, 1902.

Tame Gulls.—During the last few weeks there have been several hard frosts, and we have had some splendid skating on Derwentwater. Since the hard weather commenced the gulls have become very tame, and it is very interesting to watch them feeding in the garden, just outside our window. Between twenty and thirty of them come to be fed daily, and amongst them we noticed one which had apparently broken the lower part of its beak, which was hanging down quite useless, so this poor gull did not get much to eat while the others were there. On Sunday evening, just before six o'clock, the poor

little bird returned quite alone, and seemed very hungry. We gave it some bread crumbs and it managed, with difficulty, to take a few crumbs, returning several times for more, then it flew off to a field opposite where it remained till a quarter past six. We feel sorry for it and wonder whether the lower half of its bill will ever grow all right again.

Keswick, Cumberland. BEATRICE BANKS.
February 24, 1902.

Our Earliest and Latest Songster.—Has it ever struck any of your readers which of our songsters sings the latest at night, and the first in the morning? The thrush seems to me to sing last at night in this part, but which sings first in the morning I cannot really say. Will someone enlighten me?

Chorley, Lancashire. E. COXHEAD.

Blackcaps Wintering in England.—Records of this delicate warbler having spent the winter in England have, I believe, previously been noted, but an incident has recently come under my own notice which is worth putting on record. It appears that two female birds have been continually seen in a garden here during the past winter, and they were seen and identified by capable observers in February last. They have visited the garden for the purpose of eating the apples left purposely on the trees for the benefit of the birds during the winter—a true Selbornian act of kindness—and through a pair of good field glasses the brown or chestnut head of the female bird was very distinctly seen. Mr. Groves—in whose garden in the Crondon Road, St. Albans, this most interesting occurrence has taken place—is himself a very capable observer, and has a considerable knowledge of ornithology, besides which, other ornithologists have seen and identified the birds.

St. Albans, Herts. W. PERCIVAL WESTELL, M.B.O.U.
March, 1902.

Song Thrush in Winter.—I am much indebted to Mr. Thomas Pole of Weston super-Mare for his interesting note in the March number. It seems that my original note was not made sufficiently clear, and I unconsciously omitted words to qualify my meaning. I should have stated in the first instance that I did not think the song thrush migrated *out* of the country in anything like the numbers that some writers asserted. I did not mean to refer to any partial migration in Britain, but solely as to the birds leaving us during the winter for some foreign clime. I trust this explanation will be satisfactory, as otherwise my notes may be entirely misjudged, inasmuch as I have proved, I think (though perhaps unconsciously), that the great number of song thrushes I have noticed during this winter has been due to an immigration of birds from the north, who appear to move towards the south on the approach of winter, and I contend that my original statement that fewer of these birds leave the country altogether than is generally supposed still holds good. On a still March evening towards the middle of the present month the chorus of song thrushes in the woods here surpassed description. There must have been at least thirty or forty birds singing at one time, the only other bird sound which fell upon the ear being the metallic alarm notes of restless blackbirds and a stray vesper song from the same species. I never remember listening to such a wonderful thrush chorus, and it was all the more remarkable because of the variety in each individual song. No two songs were exactly alike, and the effect at the rapid approach of the gloaming hour was a rich treat such as would please the most indifferent observer. I may add that a nest and eggs of the song thrush was found here on March 14 last.

St. Albans, Herts. W. PERCIVAL WESTELL, M.B.O.U.
March, 1902.

The Redwing and Fieldfare.—In reply to Mr. Pole's note, I may say that my observations entirely agree with his, namely, that I have not of recent years observed these species in anything like the numbers I used to do. I cannot go back twenty years as your correspondent does, but ten years or so ago we used to be visited by considerable flocks of both species, which are very conspicuous by their absence now. I picked up a dead fieldfare on March 9, which had apparently

died of some injury, as it was in a very poor condition and had been dead several days, as the feathers on the belly came away on being touched, showing that decomposition had begun.

St. Albans, Herts. W. Percival Westell, M.B.O.U.
March, 1902.

Rook with Malformed Mandible.—While watching some rooks that were feeding on the playground of a local school, I noticed that one of the birds had a difficulty in picking up its food. It turned the head sideways to seize a crust, which it lifted after some difficulty. On watching the bird more closely, I saw that the upper mandible projected at least an inch over the lower one. The unfortunate bird was thus impeded greatly in its endeavour to obtain food. Though I had heard of such an abnormal growth, this was the first instance that I had come across.

Herne Hill. H. E. Cocksedge.

Hibernating Butterflies.—If E. M. Beechey's butterfly be not released until April, and in the meanwhile should not be fed, it would, I fear, die of starvation. Hibernating insects do not, of course, require food during the winter season, but during March, if the weather be mild, the hibernating butterflies are on the wing. I have kept in confinement a large number of butterflies—principally some of the *Vanessas*—and found they will feed freely upon honey. *V. atalanta*, by the way, is exceedingly partial to ripe fruit. My plan is to place a few drops of this beverage in the centre of a small roundish shell, so that the little creatures can feed without danger of the honey sticking to their legs. Some of the Rhopalocera have more common sense than they are usually credited with. I have known an *Apatura iris* once watch its food being placed in the larva-cage, and immediately it had been located, fly down from the side of the cage and commence sipping the sweet repast. One year I had some of these grand insects so tame that they would allow me to take them in my fingers.

A. M. P.

[In writing "April" I had in view the prolongation of recent winters. It was obviously meant that hibernating insects do not require food, but that the butterfly in question should be released as soon as the weather becomes suitable. —Ed. *N.N.*]

Bees (p. 18).—Mr. E. T. Daubeny is quite right in stating that the bees kill the drones. I have never either said or written in any book or journal in my life that they do not. In his first note he distinctly stated that they kill them by "stinging;" this is the point (no pun intended) upon which I must emphatically differ from him. He asks me to quote an authority. Well, perhaps I may not be, in his opinion, an authority: anyway, not to be egotistical, I am recognised by bee-keepers as such. I may inform him that for the last quarter of a century I have handled bees by millions: in fact, during the bee season, I am from morn to night doing little else: this is my practical work. I have also been engaged for as long a period studying them for scientific purposes, as well as lecturing on their cultivation and habits in all parts of the British Isles, and writing upon the same subject in English, American, and Continental journals. Mr. Rawlins, who also differs from Mr. E. T. Daubeny, is a bee-keeper, to my personal knowledge, of some eighteen years' standing, and is a man who does not keep bees with his eyes shut—in fact, I should judge him to be a close observer of all the minutiæ of bee-life. Does Mr. Daubeny require any further authority than that? If so, I should be pleased to furnish him with more, both English and foreign.

Now to support my statement: if Mr. Daubeny will take a few drones and place them in a box without food, leaving them in the cool for six hours, he will find them all in the condition I stated—scarcely able to move, and, according to temperature, many of them dead. Why should Mr. Daubeny suppose that drones do not require food in the middle of the night? They do not belong to the genus *Homo*. I may tell him that they feed or are fed at all times, night and day, exactly as the bees themselves work at all times, night and day. Simply because bees and drones do not fly from the hive at night, it does not follow that they sleep or cease feeding during those times. I think Mr. Daubeny should get an observatory hive and study these matters: he will, by so doing, obtain a vast amount of pleasure, and also a practical knowledge of the subject.

Mr. Daubeny quotes Darwin. I must say that Darwin never distinctly stated that the drones were slaughtered by the stings of the bees: he simply suggested, or rather surmised so: he accepted the then prevalent idea in exactly the same manner as he accepted the then prevalent idea of a rabbit and hare hybrid, which Mr. Daubeny should know has never yet been established. If Mr. Daubeny will take a drone between finger and thumb and a worker bee in the same position in the other hand, and, by bringing them together, allow the worker to actually sting the drone, he will find the latter curl up and die in a few seconds. Has Mr. Daubeny or anyone else seen the drones act like this when being turned out of the hive? Of course I cannot state that in the course of years a drone has never been stung by a worker: I only give the rule, as, to quote the old bee-man's adage, "bees do nothing invariably."

Binfield, Berks. W. B. WEBSTER.

"**Bubbles**" (p. 39).—I have at times after rain noticed bubbles on trees like the "spittle of blight," that is, like cuckoo spittle. The water had probably become saturated with the sap exuding from the tree, and thus assumed the consistency and likeness of the soapsud bubbles seen by Mr. Maurice.

Market Weston, Thetford. EDMUND THOS. DAUBENY.
February, 1902.

SELBORNE SOCIETY NOTICES.

Council Meeting.—The next meeting of the Council will be held at 20, Hanover Square, W., on Tuesday, April 15, at 5.30 p.m.

Annual Meeting and Conversazione.—The Annual Meeting and Conversazione will be held on Thursday, May 29, from 8 to 11, at 20, Hanover Square, W., the President, the Right Hon. Lord Avebury, D.C.L., F.R.S., &c., in the Chair.

The Council will be glad to have the loan of suitable exhibits for the occasion, which will be under the direction of the following gentlemen:—Botany, Mr. L. E. Taylor; Geology, Mr. Ed. A. Martin, F.G.S.; Microscopes, Mr. A. Holte Macpherson, M.A., F.Z.S.; Photographs and other pictures, Mr. A. B. Wilkinson; Zoology, Mr. Basil W. Martin, F.Z.S.

Members and friends willing to assist in this matter are requested to address the director of the department in which they wish to exhibit, care of Mr. R. Marshman Wattson, Dalmeny House, Monument Street, E.C. Tickets will be ready for issue on April 15, and Branch Secretaries are requested to send their applications for members of their branch by that date.

Members requiring tickets should apply to the local Hon. Sec., or in the case of members unattached to branches, to the Secretary, Selborne Society, 20, Hanover Square, W. *A stamped and addressed envelope (not small) must accompany each application.*

It is suggested that a Gilbert White exhibition be held in connection with this Conversazione, and the Council hope that those possessing any relics associated with the naturalist of Selborne, or copies of the various editions of his works, will kindly volunteer the loan of such objects by writing to the Secretary as soon as possible.

During the evening a lecture will be given by Mr. F. Enock on "Insect Marvels of a Town Garden."

New Members.—Mrs. M. A. Marshall, Bedford Square; Miss Dorothy Fox, Newport, I.W.; Miss Clara Berendt, Denmark Hill.

Donations and Subscriptions.—The Council beg to acknowledge the following donations: Mrs. Lowther, 10s.; and the following subscriptions over 5s.: Comtesse A. Jenison, 10s.; Miss E. Shadwell, 10s.; Miss M. W. Rankin, 7s. 6d.; Rev. A. L. Hussey, 21s.; Mrs. Minet, 20s.; Claude Leatham, Esq., 10s.; Mrs. Wolryche-Whitmore, 10s. 6d.; Mrs. M. A. Marshall, 10s. 6d.; Mrs. Lowther, 10s.; G. A. Musgrave, Esq., F.Z.S., F.R.G.S., 21s.; Mrs. G. A. Musgrave, 21s.; E. A. Bristowe, Esq., 10s.

NEWS FROM THE BRANCHES.

Bromley (Quernmore) Junior.—On March 15, Professor Boulger gave a lantern lecture, on "Gilbert White and his modern followers," to the members of this Branch.

Croydon.—On February 6, Mr. H. Keatley Moore, B.A., B.Mus., gave an astronomical lecture at the North Park Ladies' College, kindly lent for the occasion by the Misses Sturton. The title of the lecture was "A Talk about the Solar System."

On March 7, the Honorary Secretary, Mr. E. A. Martin, F.G.S., gave a lecture on "Our Footpaths and Commons, and how they were obtained." The lecture was illustrated by the lantern. Mr. Alfred Roods occupied the Chair.

The Croydon Branch is assisting in a movement which has as its object a photographic and pictorial survey of Surrey. All traces of antiquity are being so ruthlessly destroyed, when these are in the vicinity of our very utilitarian towns, that next to actual preservation of the buildings or other objects themselves, a survey by photography or other process is worthy of support, and especially of that of members of the Society. An exhibition of prints, &c., on a small scale, was recently held at the Town Hall, under the superintendence of the Librarian, Mr. Stanley Just, and any old prints or modern photos of Surrey "bits" will be well taken care of. Readers who wish to offer such to this new Surrey Survey, are invited to communicate with Mr. H. V. Gower, 55, Benson Road, Croydon.

Dover College (Junior).—On March 8, Professor Boulger gave a lantern lecture to the members of this Branch, on "How Nature sows her seeds." The Chair was taken by the Rev. the Headmaster (Rev. W. C. Compton), and the lantern was kindly worked by Captain McDakin.

Notices for Railway Stations, Hotels, Inns, Cyclists' Rests, &c.—A card 19 inches by 8½ inches (as given below) is now ready for circulation, and the Secretary will be pleased to forward specimen on receipt of 1d. stamp for postage. To Branch Secretaries and others requiring a larger supply the price is 1s. 6d. for 25 copies, post paid.

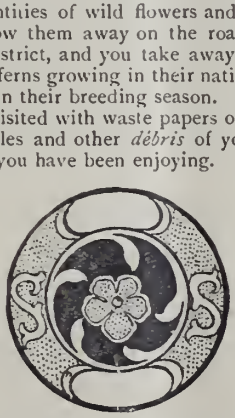
The Selborne Society.—President: the Rt. Hon. Lord Avebury, D.C.L., F.R.S., &c. Founded 1885, for the preservation from unnecessary destruction of wild animals and plants, protection of places and objects of antiquarian interest or natural beauty, promotion of the study of natural history. The Council of the Selborne Society urgently requests visitors to treat the country they are visiting with the reverence due to natural beauty.

DON'T gather such quantities of wild flowers and ferns that before the day is over you are obliged to throw them away on the road side. By such gathering you injure the flora of the district, and you take away pleasure from many people who like to see flowers and ferns growing in their native haunts.

DON'T disturb the birds in their breeding season.

DON'T litter the places visited with waste papers or torn letters.

DON'T leave empty bottles and other *débris* of your picnics to vulgarise the spots, the scenery of which you have been enjoying.



Selborne Society Badges.—The attention of members is called to the recognised badge of the Society. They are tastefully designed in pale and dark blue and silver, the outlines being as shown in the accompanying illustration. They are especially useful as a means of identification between Selbornians at

branch meetings, or at Country Field Rambles. Members desiring either form should write to the Secretary enclosing postal order. The prices are (post paid) —Brooch, 3s. 6d.; Pin, 1s. 9d. If by registered letter 2d. extra.

Leaflets.—The Council wish to draw the attention of members to the undermentioned leaflets, the circulation of which is desirable. "The Cruelty of Wearing 'Ospreys,'" R. B. Litchfield. "Feathered Women," W. H. Hudson. "A Plea for the British Butterfly," W. F. Kirby. The Secretary will be pleased to forword them, post paid, on the receipt of 9d. per 100 copies.

FIELD CLUB RAMBLES.

April 5.—Kew Gardens. Meet at main entrance on Kew Green at 2.45. Guide, Professor F. E. Hulme, F.S.A., F.L.S.

April 12.—Epping Forest. Meet at Theydon Bois Station at 3.30 on arrival of 2.41 (fast train) from Liverpool Street; Snaresbrook, 2.59. Day return tickets, 1s. 4d. Walk to Burgess Farm, Copt Hall Green, for tea at 5.15. Return from Chingford about 9.15. Guide, Mr. C. Nicholson, who will be in the East Side Suburban booking office at Liverpool Street at 2.15.

April 19.—Train leaves London Bridge, L.B.S.C.R., 2.25; Victoria, 2.30. Take return tickets to Selsdon Road. Walk to Crohamhurst and the Shirley Hills. Tea at Waterworks. Guide, Mr. Hunt.

April 26.—Train leaves Charing Cross, 2.10; Cannon Street, 2.22; London Bridge (S.E.R.), 2.27. Take return tickets to Chislehurst. Walk to Chislehurst Common and St. Paul's Cray Common. Guide, Mr. W. L. Shand.

May 3.—Ramble round Northwood, Middlesex. Guide, Mr. J. E. Whiting. Train leaves Baker Street, 2.21. Take return tickets to Northwood. Through tickets can be obtained at any station on the Metropolitan Railway. Later details will be given in the May number of NATURE NOTES.

ANSWERS TO CORRESPONDENTS.

Miss Woodd.—*Galax aphylla*, one of the *Diapensiaceæ*, a native of Virginia and North Carolina, sometimes known as "Wand Plant," and now considerably grown as a foliage-plant for table decoration. It has no right to the name Ivy.

W. Cocksedge.—It would not be desirable to publish your observation on a beautiful and much persecuted species of bird.

S. P. H.—The verses quoted by our reviewer are, we believe, by Mr. Swinburne; but we do not know their title.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., Richmond, S.W.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

No. 149. MAY, 1902. Vol. XIII.

SELBORNIANA.

Memorial to Richard Jefferies.—The members of the North Wilts Field and Camera Club have in hand a movement of very considerable interest, for it is their intention to affix a tablet to the front of No. 22, Victoria Street, Swindon, to commemorate the residence in the house of the great Wiltshire writer, who resided there for a few years previous to his removal from the district in 1877. The object which the energetic Club named has in view is worthy of all support. It will be remembered that a bust of Jefferies, by Miss Margaret Thomas, was erected in Salisbury Cathedral in March, 1892, and there was a brief report in Nature Notes of the proceedings.

War on the Sparrow.—Mr. Hannett writes: "Under this heading a paragraph appeared in the *Evening News* for March 31. It stated that the Suffolk farmers are waging war on the sparrow. The Wickham Market Club, recently formed to encourage the capture and killing of these birds, has returned a total of 8,583 sparrows destroyed. From all appearances, it seems that this cruel practice will never be ended. Surely it is high time that someone intervened on the birds' behalf, and the Suffolk farmers must remember that the sparrow is by no means their only enemy."

Richmond Park.—It is hardly necessary to call attention to the preposterous suggestion that this lovely park should be utilised (hateful word!) as a military training ground. There is an ugly waste at Hounslow, the War Office owns much meadow land thereabouts: there are the flats at Rainham and Purfleet, and on the Kentish side of the Thames; and there are Epsom Downs and Mitcham Common, at present wasted on horse-racing and golf. Even a return to the former destruction of Wimble-

don would be preferable to any interference with the beauty of Richmond.

Humanitarian League Conversazione.—The Humanitarian League are holding a Conversazione on Wednesday, May 7, at 8 p.m., at the Victoria Hall, Archer Street, Westbourne Grove, W., at which a short play, by Mr. H. Stephens, will be performed. Tickets can be obtained at the office of the League, 55, Chancery Lane.

A Gallery of Flower-Paintings.—Mrs. Hensley (Miss Marie Low) is exhibiting a series of water-colours of flowers at Walker's Gallery, 118, New Bond Street. The exhibition opened on April 14, and lasts until May 5. We hope to reproduce some of Mrs. Hensley's work in a future number.

The World-wide Naturalists' Society.—We have been asked to call attention to the existence of this Society with a somewhat ambitious title. The centre of the world for its purposes is Glasgow: its Secretary is Mr. David M. Muir, of 10, Minard Road, Crossmyloof, in that city: its official quarterly magazine is entitled *The World-wide Naturalist;* and its subscription is three shillings a year, foreign members being free. We are not sure what this last proviso implies: in Dublin it would free all Englishmen; but perhaps it may, under the present circumstances, only apply to Selenites or Martians. Every member has to "send one paper, at least, each quarter," so that the Society evidently means to be a working one. We wish it every success.

A HALF-HOUR WITH NATURE IN A MIDDLESEX LANE.

IT was in that month of months,

> "Of every moneth in the year,
> To mirthful May there is no peer,"

and during its first week, that I was left with three-quarters of an hour on my hands; so I turned away for a brief spell with nature, with its glorious beauties and realities, as a relief from the prosaic duties which go to make up the common round and daily task for *Genus Homo*. Fifteen minutes was occupied in going to and fro. The lane is bounded on the right with railed fence enclosing private grounds, which extend for at least five hundred yards, and just inside, yet fully visible, is a bank of lilac (in variety), and in full bloom. The left is an ordinary hedgerow enclosing pasture and arable lands and orchards. This hedgerow is gay with hawthorn, and at intervals stately elms throw their welcome shade across the road, its

bank is green with grasses and ivy, enlivened with our dear English wild flowers, buttercup (*Ranunculus repens*), forget-me-nots (*Myosotis*), wild parsley (*Anthriscus*), clover (*Trifolium*), daisy (*Bellis perennis*), dandelion (*Taraxacum officinale*), scarlet pimpernel (*Anagallis arvensis*), and many others which we term (carelessly) common weeds, yet they fulfil their mission, they beautify and help to make up the glorious whole.

A pause to glance over hedgerow and admire the luxuriant grass, relieved with streaks of gold, red and white; for the whole expanse is gay with buttercups, sorrel, daisies, parsley, &c., while the air is redolent with hawthorn and lilac: buzz of insect life is all around, and the numerous birds are filling the locality with melody. What a chorus! Thrush, blackbird, lark, &c., making a glorious whole and a veritable sea of delight.

> "The welcome flowers are blossoming,
> In joyous troops revealed;
> They lift their dewy buds and bells
> In garden, mead and field.
>
> "From the green marge of lake and stream
> Fresh vale and mountain sod,
> They look in gentle glory forth,
> The pure sweet flowers of God."

A few yards farther on I pause again and look through the railings of a small bridge. Here I see a small brooklet, winding down the meadow; on one side, as far as the eye can reach, stretches a row of noble elms, which throw their shadows o'er its course: its banks are beautified with grasses, reeds, forget-me-nots, wild hyacinth, primroses, water-dock, ferns, &c.; while across it in several places lie trunks of uprooted trees, evidences of winter's storms and rough revels.

Here, too, but a few strides away and close to the road stands a giant elm, its lower branches having been cut away; there are masses of twiggy growths, in which have built sparrows (*Passer domesticus*), blackbirds (*Turdus merulus*), thrushes (*Turdus musicus*) and starlings (*Sturnus vulgaris*). I counted six nests in as many feet of its gnarled and weather-beaten trunk. I gazed with delighted interest at their business, gladness, and also strife; for they were so close upon one another that it was difficult for them not to intrude on one another's preserves. A neighbour from next door did intrude on the sparrows; but he was at once chased away. How busy they were, now in the rank grass of stream-bank and meadow, then back to their hungry brood, with those juicy grubs and insects so necessary for their development and welfare! But I could not linger, my brief time in this little paradise was all but gone. As I wandered back I could only note and recognise the notes of the multitudinous birds around me (not all to be seen but yet heard), could not pause even to distinguish between the calls of affection, defiance, alarm, or sheer joyousness, yet they were all there.

There were tits in variety (cole, great and blue), seen, red-

breast, garden warbler, willow wren, chiff-chaff, linnet, accentor, martin,* swallow†, greenfinch, chaffinch, rook, thrush, blackbird, starling, redpoll, lark, yellow-bunting, cuckoo, wood-pigeon, &c., while from the afore-mentioned private grounds came the harsh scream of the peacock and cries of foreign water fowl.

Of the insect life abounding I made no note. Bees of all kinds were busy, and as I stirred the grass and leaves with my stick, beetles innumerable (large and small) were disturbed and scurried away to shelter. Butterflies, yellow, white and blue, fluttered about everywhere.

I fain would have lingered, but my time was gone, so I reluctantly turned away from nature's beauty and set my face once more to the prosaic duties of life, but refreshed physically and mentally by this brief converse with the things of nature. The memory of this occasion is green now as I write this, after the space of just two years.

"This world is very lovely, O my God!
I thank Thee that I live."

"Not a flower
But shows some touch in freckle, streak, or stain,
Of His unrivalled pencil,
There is not one but
Seems, as it issues from the shapeless mould,
An emanation of the indwelling life,
A visible token of the upholding loves,
That are the soul of this wide universe."

WESLEY T. PAGE, F.Z.S.

THE EARLY LIFE OF THE YOUNG CUCKOO.

THE cuckoo has always been the subject of considerable controversy and debate, and with all our wonderful strides in the scientific world we have as yet failed to solve many of the mysteries which surround its life and habits.

With all our years of careful and patient observation we have not yet fathomed the mystery of why the cuckoo does not build a nest of its own, and as to how many eggs one female lays during a season. True, we have by this time exploded the altogether erroneous statement that the bird lays its eggs in the nest of the species with which it had decided to entrust its offspring, as it is now proved beyond a doubt that the bird does not lay the egg in the nest nor does it carry the egg in its claws, but first lays the egg on the ground and carries it to the selected nest in its mouth.

* *Hirundo urbica.* † *Hirundo rustica.*

Although we have accomplished this much, we have not yet proved in any way why the egg is so very small in comparison with the size of the bird, but my friend, Mr. John Craig, to whom I shall shortly refer, has, so far as I am aware, produced the best explanation of this by stating that he considers it is for the purpose of quick incubation and to allow the egg to be deposited in birds' nests which are smaller than the cuckoo, and also to allow the cuckoo to carry the egg in her bill to its destination without breaking it.

As to why the bird does not build a nest for itself, my friend also put forward the theory that if it did, and laid four or five eggs to the clutch, one on each successive day, the instinctive desire implanted in the young cuckoo of clearing everything out of the nest in which it is hatched, is so strong that there would be a struggle among them for possession of the nest, and the weakest would perish, and they would be in a worse position than at present for perpetuating their species. Mr. Craig thinks that it is incompatible with the perpetuating of their species for more than one egg to be deposited in the same nest. I must say that so far these observations are the most practical that I have as yet seen, and too much prominence cannot be given to the fact that Mr. Craig has paid particular attention to the curious life-history of this interesting harbinger of summer, and the opinions at which he has arrived are the result of several years' hard work in field ornithology.

I have entitled this article "The Early Life of the Young Cuckoo," and do not therefore propose to enlarge on the life and habits of the adult bird, but to proceed to describe a most interesting series of experiences and experiments with some young cuckoos which Mr. Craig successfully carried out during the summer of 1899.

Up to the date of Mr. Craig's valuable observations considerable doubt existed as to how the young cuckoo ejected its foster-brothers and sisters or the eggs out of the nest in which it happened to be placed. Many theories were expounded, but it seemed that although so many were ready to put their theories and experiences into print, very few indeed had actually witnessed the occurrence. We had had drawings illustrating the young cuckoo in the act of ejection, but these were not convincing enough to those of a sceptical frame of mind, although those who had actually witnessed the performance readily accepted the drawings as correctly representing the mode of procedure.

Controversy in a certain channel reached fever height in 1899, and my Ayrshire friend at once set to work and secured a wonderful series of photographs *revealing*, as well as illustrating, the young cuckoo in the very act of ejecting an egg and a young bird, which photographs and experience have by this time been heard of throughout the ornithological world.

What Mr. Craig has accomplished is a perfect revelation to

many people, the more so when one considers how extremely difficult it is to accomplish such a feat, but owing to his well-directed enthusiasm, patience, care, knowledge of his subject and whole-heartedness, he has placed bird-lovers under a deep obligation to him, and, as Dr. Japp says in his recently published book, "whom all the world will thank for so far decisively setting this matter at rest."

On June 2, 1899, Mr. Craig found a meadow-pipit's nest containing two cuckoo's eggs and three pipit's. One of the latter eggs was broken to ascertain how far incubation was advanced, so that he would know about when to return to resume his observations.

A diversity of opinion arises as to whether the two eggs were deposited by the same cuckoo, but the opinion of Mr. Craig, and also of the writer, is that they were deposited by different cuckoos. The eggs were different in colour, size, and shape; but it must not be assumed from this that I am of opinion that the same identical bird could not lay eggs quite as different in marking, colour and shape.

It is rare that the meadow-pipit lays a clutch of eggs numbering less than four, and this being so it is reasonable to suppose that the cuckoo (or cuckoos) when depositing the eggs had taken away one or more of the pipit's, leaving five in all, that is, including the two cuckoo's.

On June 6 the eggs were still unhatched, but two days later both the cuckoos were out of the shells, and one of the pipit's eggs was found lying outside the nest, and the other remaining pipit's (as Mr. Craig had already broken one of the eggs only two remained) was also missing, probably it had been turned out of the nest by one of the young cuckoos and carried away by the parents.

The two young cuckoos appeared at first to be quite happy together, but a struggle of extraordinary violence was soon commenced between the two birds. What was apparently the stronger bird of the two got what was evidently the weaker on its back and strained every muscle to hoist it to the top of the nest, while the other was holding on to the nest with its claws for all it was worth. After a severe struggle they both became exhausted and went to the bottom of the nest, but after a short respite the battle was again commenced time after time, each bird fighting for dear life.

On visiting the nest the following day (June 9) one of the cuckoos was found outside the nest. Before putting it in again a young pipit was secured and put in the nest. The cuckoo hoisted it again and again on its back and climbed up the side of the nest backwards with it, but the pipit always got jammed near the top. The other cuckoo was then put in again and a desperate struggle was witnessed. Sometimes the birds put their bills and heads against the opposite side of the nest when commencing to climb, to get more pressure. Several times the

top bird tumbled over the head of the other, like a rider falling over the head of a horse. The birds being somewhat exhausted had a short rest, but they soon became extremely restless and again commenced the struggle.

It was unfortunate that although snapshots were taken of these avine battles they all proved useless. The following day (June 10) one of the cuckoos was again found outside the nest. It was placed back again, when the cuckoo in possession of the nest began to hoist the other on its back and climbed up the side of the nest backwards and threw it out of the nest, which it had little difficulty in doing as the one found outside the nest had become weak through want of food. After this the weak bird was placed in the nest to give it a chance to recover, and the stronger one was taken away for about an hour. On returning, the bird was put back into the nest again, whereupon the weak bird made several attempts to eject its stronger companion, but without effect, as it was far too weak. It then acted on the defensive by lying in a canted position by keeping the side that was next its opponent downward, one of its legs being stretched out and its claws against the opposite side of the nest, to try and prevent its opponent from getting under it. The nest was then bolstered up to give the weak bird a chance to recover, but on June 11 the weak bird had disappeared altogether. The pipits paid no attention to the young cuckoo when it was outside the nest, although the bird was frequently sitting on the side of it.

Thus far no photographs of any value had been secured, although such excellent opportunities had been presented. Not to be outwitted, Mr. Craig procured a young yellow-bunting, which was admirably suited for his purpose. This he placed in the nest beside the sole remaining occupant, *i.e.*, the strongest young cuckoo. After a few minutes' delay the cuckoo hoisted the yellow-bunting on its back and climbed up the side of the nest backwards and shot the bird over the nest! The young bird was put back into the nest again and again, but the cuckoo repeated the operation each time.

Six snapshots were taken at various stages, and two of them were of a most successful character. By this time the cuckoo was five or six days old and the yellow-bunting was about three or four, and it should be remembered that for the first few days the young cuckoo is quite blind.

The nest was then stretched out (it should be stated that the nest of the meadow-pipit is built on the ground), to try and save the young yellow-bunting, but on visiting the nest the following day (June 12) the bird was found lying dead outside the nest.

The next visit was paid on June 17, when a young hedge-sparrow was placed in the nest to see what further performances would take place, but the two birds sat quite contentedly together, and the following day (June 18) they were still living quite amicably. On June 19 both birds were progressing very rapidly,

and it seems strange that the bird, who would not allow anything to be beside it only a few days previously, now allowed a young bird to live in harmony with it. When the young hedge-sparrow was put into the nest it would be about eight days old and the cuckoo ten or eleven days.

About the same time as the above-mentioned incidents took place, Mr. Craig found another cuckoo's egg in a meadow-pipit's nest, and this bird ejected all the four pipit's eggs, one of them being thrown out when the bird was not twenty-four hours old. One of the photographs taken illustrates the young cuckoo with the egg in the hollow of its back.

In conclusion, I may state that the young cuckoo has a depression on the back, which gives a more secure lodgment to the young bird or egg, and the back is broad considering the size of the bird. It makes considerable use of its wings in steadying the bird on its back, and to prevent it from rolling back into the nest again, as well as in examining, as it were, a bird or an egg in the nest.

W. Percival Westell, M.B.O.U.
Author of "A Year with Nature," &c.

A WEEK-END TRIP ON THE CAM.

HAVING recently spent a most enjoyable week-end trip in a canoe on the river Cam, I feel tempted to commit to paper some of the more interesting observations made by me at that time.

On June 8 a friend and myself, freed from the horrors of examinations, hired a double canoe, stored with provisions, rugs, cushions, tobacco, lime-juice, fruit, &c., and started from Cambridge at mid-day. Our first "bivouac" was to be a spot about six miles up the river, so that we had ample time to look for birds' nests *en route*. We scarcely, however, did much in this way, except to find a swallow's nest with three eggs in a boat-shed running down to the water's edge, until we came to a large copse extending for some hundred yards along the bank. Here we moored the canoe, and were quickly rewarded by hearing the clatter of a stock-dove as she left an ivy-clad willow tree. My friend was soon on the summit, and after a few moments' search was rewarded by discovering the nest with its two white eggs hidden in a hole covered by ivy; this was a good start, and gave us hope of further success. The copse was not, however, very rich in bird life, though we found a turtle-dove's nest with two eggs, a spotted flycatcher's with five, a blue-tit's and other common kinds.

Embarking again we continued our journey, but in hauling the boat overland, owing to a weir obstructing our course, we

were unfortunate enough to ship a quantity of water, which soaked our rugs and cushions as well as my sweater and scarf, though we did not at the time realise the discomfort brought upon us later by this occurrence. Shortly afterwards we stopped for a bathe, the water being quite warm, though a trifle overgrown with weeds and water-lilies.

Being anxious to get some moorhens' eggs for our breakfast on the following morning, we confined ourselves to carefully examining the overhanging bushes and other likely spots, and were not disappointed. The site of the nest was the trunk of a fallen willow which overhung the stream, and the eggs, which proved to be newly laid, were carefully stored in the bows of the boat.

A mile or two further up stream we were surprised by some snipe—first two, then three or four, and later as many as a dozen—flying anxiously round us in the air, now skimming close to the boat, now rising high in the air, now giving vent to their gull-like cries, now swooping down and producing the peculiar drumming sound so characteristic of these birds. The idea of a snipe's nest being irresistible, we quickly moored the boat and wandered over a large area of thick, sodden herbage which flourished in the wet, marshy land. Beyond rousing several other snipe, which joined their companions in the air, we met with no success. Finally, we lay down on the ground and watched them all settle, in the hopes that they would thereby betray their nests, but in this we were foiled, as directly we stood up on our feet all the birds immediately rose into the air and continued their former gyrations. Accordingly we reluctantly made our way back to the boat and launched her, feeling sad at heart. A couple of hours' paddling brought us to the mill, which necessitated our hauling the boat overland and depositing it on the higher waters. We now proceeded to look out for a place in which to spend the night, and soon decided on a spot well sheltered by willow trees and skirted by a field of long, thick grass.

It was now 10.30 and the light was nearly gone, so that our supper, consisting of tea, bread, potted-meat, cheese and biscuits, was taken with some difficulty; at 11.30, having lighted our pipes, we wrapped ourselves in the rugs and lay down, my friend on the ground, I in the boat, and tried to sleep. In this, however, we had made a grievous mistake, chiefly owing to the dampness of the rugs and our clothes; at 12.30 the dew lay so thick on the ground that my friend was forced to get into the boat, and we despaired of sleep, so re-lighting our pipes we smoked and talked.

There was, nevertheless, plenty to interest us, as we could plainly hear every few minutes an otter diving for fish, which he apparently caught, by the audible flappings indicative of a successful foray; numerous water-rats too were on the feed, and in the uncertain light we could see them crossing and re-crossing

the stream; on several occasions they came within a few feet of us and unconcernedly nibbled the grass and flags on the bank.

We were uncharitable enought to hurl imprecations on the head of a sedge warbler which at intervals of a few minutes persisted in singing through the whole night; at one time I was sufficiently energetic to seize a paddle and invade the willow from which the song proceeded; the sedge warbler, however, annoyed at my intrusion, poured forth such a storm of abuse that I returned to my bed baffled.

About 1.30 quite half-a-dozen others of the same species were singing one against the other, and before 2 o'clock a cuckoo was enlivening the scene with his notes; a thrush also had perched on the top of a willow-branch and was pouring forth a song to greet the coming dawn. Before it was sufficiently light to see we could hear a moorhen croaking in the reeds, a greenfinch in the trees overhead, a chaffinch, a wren and a few others.

At 2 we decided that sleep was out of the question owing to a thick mist which was slowly being drawn towards the moon, then shining brightly overhead, and to the consequent dampness of our clothes. We then lit our spirit lamp and made some Bovril, and at 2.30 continued our journey. As the sun began to rise the chorus of birds was perfectly bewildering—from every quarter came the jubilant strains of sedge warblers, wrens, chaffinches, doves, cuckoos, pigeons, &c.; at no other time of the day have I ever heard such a bird concert.

On our journey up stream we roused numerous ring and turtle doves and rooks from the roosting places in the willow trees which fringed each side of the river for many miles; these trees are greatly patronised by birds owing to the many suitable holes for their nests, and I have no hesitation in saying that on an average there is at least one nest in every tree, so that the number of young birds—tree sparrows, doves, pigeons, tits, fly-catchers, wrens, and such like—reared along this river must be incalculable.

At 2.30 we found to our dismay that the boat had contracted a leak, which made it necessary for us to empty her every half-hour; this fact, coupled with the discomforts of the previous few hours, made us gloomy and in doubtful humour.

When rounding a bend of the stream, while the mist was still partially shrouding the water, we came quite close to a wild drake with a dozen "flappers," about whose welfare he was much concerned; he soon took to flight, followed by several of the brood, but settled again on the water ahead of us. Meanwhile the remainder were every moment appearing on the surface a few feet in front of the boat and diving again, only to reappear a few yards farther on; we soon, however, left these behind, but the drake rose up several times in front of us and finally took refuge with his few followers in a thick reed-bed.

About 4.30 we came to a nice open spot, on which the sun was shining brightly, and here we put ashore for breakfast, being glad also to spread out our clothes and rugs to dry. Having lit a fire and breakfasted—*inter alia* on moorhens' eggs—we again took to the river, intending to reach the next village before 7 o'clock in order to avoid shocking the natives by our unsabbatic garb. Having enquired of an old man we met, we found that a carpenter lived about half a mile from the river, so we beached our boat and made our way along the main road in search of his house. Our general appearance and the bareness of our legs caused much consternation among the few unsophisticated rustics so early astir. While the boat was being repaired I snatched an hour's sleep and awoke at 8.30 much refreshed, and feeling in excellent form to enjoy the glorious day evidently in store for us.

Before restarting we had a look round for birds' nests, and those who are so minded will doubtless see the just retribution for our infringement of the Third Commandment when I say that I badly "cricked" my spine in helping my friend to get up to a tree sparrow's nest; for some hours I could hardly move about without considerable pain.

When our boat had been caulked we went on for a couple of hours, and after surmounting another mile we found an ideal spot for a halt; here my friend slept for some time, whilst I made futile attempts to find a cuckoo's egg. About midday we had a sumptuous lunch, a bathe, and a two hours' "siesta," and it was 3.30 before we started on our return journey.

Little of interest took place until we reached a place which we had previously noted as being suitable for a night encampment; this was a large straw-rick, on which abutted a temporary straw shelter for sheep during the lambing season.

The chief feature of our supper—partaken of at this place—was some desiccated Mulligatawny soup which we made in a kettle, utterly ignoring the multitudinous "directions for use" contained in the packet; it proved an unqualified success and was most enjoyable.

About 10 o'clock we made a sumptuous bed of straw, and laid thereon our rugs and cushions and, with pipes in our mouths, proceeded to go to sleep. Unfortunately we had not counted on the presence of rats, which persisted in annoying us until daylight; one fell from the roof on my friend's cushion, another brushed past my face, several scampered about in close proximity to us, so that altogether we found sleep most difficult.

At 3.30 we were up and had fortified ourselves with cocoa; from here we paddled till 5 o'clock, during which time we noticed nothing particular except the extreme abundance of water-rats, of which we must have seen at least sixty in an hour and a half.

After breakfast we made our way to the field where we

had previously seen the snipe, and we again spent two fruitless hours searching for their nests—our sole reward being a land-rail's containing eight eggs. After quitting this field we decided to go up a small tributary of the Cam, to visit some nests we had found empty a week previously: three reed warblers' had each four eggs, and near one of these I saw a fine specimen of a puss moth, which was on a reed close to the water, and had apparently recently emerged from the chrysalis.

We found several other nests—sedge and reed warblers', fly-catchers', a chaffinch's with blue eggs, and a few others, but did not tarry long, being anxious to get into Cambridge early in the afternoon. At 2.30 we were home again, feeling tired, untidy and unshaven, but nevertheless having enjoyed our trip immensely, and having established a record (for us) in early rising which we shall not attempt to beat for some time to come.

Corpus Christi College, Cambs. A. C. MACKIE.

REVIEWS AND EXCHANGES.

El Ombú. By W. H. Hudson. Duckworth and Co. Price 1s. 6d.

Nothing written by so distinguished a naturalist and keen an observer as Mr. W. H. Hudson can be without interest, and the four stories contained in this small green volume (Messrs. Duckworth and Co.), which take us back to the South American pampas, already made familiar to us by his previous books, have much of the vivid actuality of the latter, and, while dealing with men instead of birds and beasts, give us veritable and most grimly realistic pictures of life in Argentina in the early half of the last century: rough sketches hot with the sun of that southern land, stained and often disfigured with blood; sombre generally, not infrequently dreary; but bearing even in their imperfection, their occasional incoherences and want of dramatic construction, the impress of having been taken down, as represented, from the lips of one belonging to the soil of which they speak. We trust that if, having said this much, we go on to add that we prefer Mr. Hudson in his dealings with the natural life, rather than the human denizens of the pampas, it will not be thought uncomplimentary to an author who might well have been contented to rest his laurels upon facts without invading the already overcrowded walks of fiction.

The Trees of Dulwich: with some General Information about Trees. By M. J. Teesdale. Leek: W. H. Eaton, the Moorlands Press.

With the natural exception of Kew, no suburb of London is perhaps so rich in hardy exotic trees as Dulwich, and in this neatly printed brochure of 72 pages Mr. Teesdale, an enthusiastic local botanist, has got together a vast amount of pleasant gossiping tree-lore. The information given is strictly accurate so far as the botany is concerned, though the printer has been somewhat eccentric in his diphthongs and initial capitals. Of the rich store of local history and biography we do not feel competent to speak; but it is at least not certain that the elder John Tradescant had anything to do with Holland. Lovers of trees and those interested in London local history owe a debt of gratitude to Mr. Teesdale for his pleasant contribution to the subject of their studies.

The Protection of Birds. By Captain G. A. Daubeny. (Reprinted from *The Western Morning News.*)

This reprint is in the awkward form of a single folio sheet of thin paper; but for its wise and moderate contents we have nothing but praise. It is an endeavour to

answer the three questions, why do we protect birds, how do we protect them, and what remains to be done. Captain Daubeny speaks of the African Big-Game Convention, the laws enforced in Germany, the classification of birds from the point of view of protection, and the history of what has been done in England. As to the attitude of the Christian Church on the question, he writes: "As I think of these things I am often led to remember, with regret, I may almost say with shame, how little do we hear from Christian pulpits of even kindness to animals and birds, not to mention their protection. The hideous and degrading cruelties that are daily practised in Christian England on horses and dogs, by docking and nicking their tails, clipping the flesh of their ears, ignorant shoeing, and in other ways, resulting in life-long pain, disability, and discomfort, I have never once heard preached against. Nor have I ever heard the voice of an English preacher raised in denunciation of those who indirectly inflict pain on birds by the wearing of plumage torn from the living bird or from birds killed whilst tending their young." His moderation is evinced by his admission of the happiness of cattle, poultry, canaries or other song-birds, or doves, in captivity. These, as Mr. Seton-Thompson has often shown, often live in comfort to an age never likely to be attained in a wild state. As to the future, Captain Daubeny recommends the increase of the fine for taking rare birds to five times their market value, the reduction of the list of scheduled species, the dissemination of accurate coloured illustrations and descriptions of protected species by the Board of Education and the Police authorities, the examination of constables in this subject, the prohibition by law of the pole-trap, the protection of hawks, the reduction in the numbers of the common sparrow, the planting of trees on waste lands and the acquisition of woodlands by public bodies.

The Coming of Age of the Essex Field Club. A Record of Local Scientific Work, 1880—1901. *The Presidential Address delivered at the 22nd Annual General Meeting of the Club on March* 22, 1902, by Raphael Meldola, F.R.S., &c. Reprinted (with separate pagination) from the *Essex Naturalist*. Published by the Club at the Essex Museum of Natural History, Stratford. Price 1s.

It is not often that a field club celebrates its majority, and certainly never was field club in England able to record, when doing so, a better tale of appropriate work well done than that which Professor Meldola has here the happiness of telling. For the first president of a society to re-occupy the presidential chair after an interval of nineteen years is in itself remarkable; but for him to be able, as Professor Meldola is able, to turn back to his opening address and point to nearly all his aspirations as fulfilled by the two decades of work, must be almost unexampled. The Essex Field Club may well be proud of the nineteen volumes it has published, the museums which it has established at Stratford and at Chingford, and at the constantly recruited body of workers it has got together. Still there are two aspects of its work that are not altogether satisfactory: the nearness of its field of operations should attract even more members from London, together with more financial support from county magnates and others; and the scientific work of the Club should be shared by a larger proportion of its members. Both these desirable ends are likely to be much furthered by Professor Meldola's inspiriting summary of the past.

Epsom College Natural History Society. Report for 1901. No. 13. Epsom. L. W. Andrews and Son. Price 1s. 6d.

This is a good sound outspoken record of work done, giving lists of plants, lepidoptera and birds observed during the year, meteorological observations and measurements of boys, desiderata of the College Museum, and an interesting lecture on "Surrey Walks and Wild Flowers," by the President, the Rev. T. Hart Smith. Does no one at Epsom study mosses, fungi, or insects other than Lepidoptera?

Report of the Felsted School Scientific Society for 1900 *and* 1901. *No.* 15.

This is a similar record to the one above-mentioned, with somewhat similar limitations. Unlike the Epsom Report it is un-illustrated, although there is a Photographic section; but, *per contra*, several lectures on a variety of topics are printed *in extenso;* and the report of a flourishing Chemical Section also appears.

Some Plants of Silverdale, West Lancashire. By S. Lister Petty. (Separate, from the *Naturalist.*)

This is a most careful florula, or localised catalogue of all the recorded flowering plants and pteridophytes of the district. We could have wished for some notes of altitude and other conditions beyond the terse statement, "The formation is limestone;" but the list is a lengthy and a critical one.

Received:—*Board of Agriculture Leaflets, Nos.* 71-3, dealing with The Colorado Beetle, *Doryphora decemlineata*, with coloured figure, the Purchase of Artificial Manures, and Cultivation of Maize for Fodder, respectively; *The Victorian Naturalist*, and *The American Botanist* for March; *The Naturalist, The Irish Naturalist, The Naturalists' Journal, The Animals' Friend, Our Animal Friends* and *The Animal World* for April.

NATURAL HISTORY NOTES AND QUERIES.

Australia.—When writing of Lake Woods, alias Sturt's Plain, Bishop White says: "Sturt . . . did not suspect that it was a lake." To many of your readers this may seem rather mysterious, but the explanation is simple.

Australia may be roughly divided into three parts, namely, a coast-belt of varying width, a somewhat broken range running round the whole island, and the flat interior country. The coast range intercepts the greater part of the rain-clouds and sends the water back to the fertile outer belt, where there are consequently permanent rivers. The interior is mainly dependent upon the moisture which goes over the hills or through the gaps in the range. Hence the rivers of the interior are practically only drainage channels with no well-marked head or source, and usually ending in a plain.

After a dry season the river-bed contains only occasional pools of water, or may even be entirely dry throughout its length, while a wet season not only fills the bed of the river, but floods the plain to a greater or less extent, according to amount of the rainfall. Thus it comes that one explorer reports a grass-covered, level plain, where another finds a huge lake.

I have crossed the Darling River after a drought and found a channel nearly 50 feet deep and 100 yards wide, with a trickle of water at the bottom not 3 inches deep, and not many years later the water at the same place was 20 miles across and carried away miles of the railway embankment!

While living on Cooper's Creek I often had letters from friends in England inquiring how we could have big floods and no rain? The reason was that the rain had fallen in the ranges at the head of the Thomson and Barcoo Rivers, hundreds of miles away, and the water came down in real mountains, flooding the plains of the Cooper, which is formed by the junction of these two rivers.

41, *Holland Park, W.* ERNEST A. ELLIOTT.
April 7, 1902.

Squirrels Playing Havoc.—Surely Mr. Danbeny, in his note (NATURE NOTES, 1902, p. 73), is rather hard on the squirrel. No doubt where they are very numerous these little animals may do some damage to trees, though I believe this is apt to be exaggerated. As to the harm they do by destroying eggs and young birds, I am quite unable to adopt the writer's views. That instances have occurred of squirrels having been seen devouring both eggs and nestlings is well known; but this taste for animal food is in all probability only occasionally indulged in. The exceptional nature of such a habit is the cause of its attracting so much attention. Almost all our native rodents, with the exception of the hare and rabbit, at times take to an animal diet of some kind, though most of them are in the main vegetarians, and it is not at all likely that eggs and young birds are *habitually* sought after by squirrels.

To "thin the ranks of squirrels" as suggested would, I think, make no appreciable difference in the number of small birds in a district. Wherever there are

suitable spots there will, generally speaking, be plenty of nightingales, blackcaps, whitethroats, and other warblers, squirrels or no squirrels; besides which, do not the beauty and engaging ways of this little pilferer make some amends for his misdemeanours?

Blaxhall, Suffolk. G. T. Rope.

Concerning Linnets.—For several years I have noticed the simultaneous occurrence of two things in this parish, about three miles south-east from Maidstone. These are the poling of the hops and the appearance of small flocks of linnets. This has happened so often that I cannot think it a mere coincidence, but I should be glad to hear whether others have observed the same thing in this or other parts of England. There is less poling of hops now than formerly, permanent poles being used so much, with wire and string. But the hops have been cut or "dressed," and in some gardens there has been poling, and, true to time, the linnets are here once more, about the first week in April.

Mr. Hudson, I observe, writes: "After the breeding season the linnets unite in large flocks, and at this time there is a southward movement, and large numbers undoubtedly leave this country to winter elsewhere." I take it that what I have described represents the return of many of these migrants, which Mr. Hudson leaves to be inferred, as he does not mention it directly.

Otham, Maidstone. F. M. Millard.

Bird Sanctuary at Hampstead.—In the Fifth Annual Report of the Hampstead Heath Protection Society it is announced that the Committee have recommended to the County Council the planting and enclosure of two small plots as a shelter for birds, and have submitted a plan of the ground thus proposed to be dealt with. This shelter is no new idea, for Mr. J. E. Whiting has had it in mind and has worked for it some ten years, and than he there is, I expect, no greater authority upon the flora and fauna that yet linger upon our Northern Heights. The necessity for such a scheme appears to have been first brought home to him about ten seasons ago, when pitiless cold prevailed just about the time of the arrival of the migrants, of which, from want of nourishment and exposure, there perished considerable numbers. During Mr. Whiting's long residence in the district there have been shown to him snipes, wheatears, wrynecks, whinchats, and even nightingales and cuckoos, as having perished from a similar cause. The shelter, then, it is hoped, is soon to become an accomplished fact. It would be located in a small valley near the Viaduct Pond, through which at present a small stream trickles, and near a spot where the marsh marigolds grow. The stream is a little object-lesson in geology, since, granting the needful time, it here demonstrates the erosive power of water. A mere ditch at present, the waterway, if required, can be widened: it can be planted with suitable aquatic growths: upon the banks evergreen trees, shrubs, gorse, sloe, and thorns of different kinds may be made to grow; and if these in turn are enclosed by a wooden fence, which should be no eyesore among the greenery, a sanctuary nearly or quite impregnable to human marauders should be the result. Formerly the nightingale could be heard in several places hereabouts, and according to Mr. Whiting, it is not so very long ago that it built its nest and reared its young upon the Heath. But unhappily, we have changed all that, and the birds' last refuge in this locality, possibly the point nearest to the Metropolis where it yet sings, I mean Bishop's Wood Avenue, is threatened by aggressive builders.

Hampstead. A.

April 9, 1902.

Birds and Berries.—I was much interested in reading in Nature Notes for this month the note on "Birds and Berries," and this afternoon I have just seen five or six wood-pigeons eating, really greedily, the berries of the ivy on the trees in my garden: they were so busy that they let me watch them from my bedroom window, quite close to the tree round which the ivy grows, without moving, though I usually find them shy birds, at least compared with many that come to feed here. I have often seen the wood-pigeons on the lawn, but never in the ivy bush until to-day.

Lamorna, Torquay. Lydia Pengelly.

April 8, 1902.

Our Earliest and Latest Songster.—Mr. E. Coxhead may, I think, be assured that the thrush (save the nightingale and sedge warbler, both night-singing birds) while being the latest night-singer, is also the first to break into melody in the morning. These songsters, while prolonging their song during June until near midnight, renew it again by two o'clock in the morning.

41, *Heath Street, Hampstead, N.W.* JAMES E. WHITING.
April 8, 1902.

Our Latest Songsters.—In reply to E. Coxwell, in the April number, the following experiences may be of interest: On July 22, 1901, I sat at my open window from 2 to 4 a.m., and the subjoined was the order in which I heard the first song or notes of birds—Swallow, 2.45; cock, 2.55; thrush (cracking snail), 3.0; robin, 3.10; blackbird, 3.20; flycatcher, 3.30; crow, 3.40; pigeon (?) 3.45; wren, 3.50; sparrow, 3.55; magpie, 4.0; blue tit, 4.1. These times are correct within a minute or two. The nightingale *per se* cannot be reckoned in such a list.

On June 8, 1901, I was camping out up the Cam, and owing to the heavy dew and insufficient covering I was unable to get any sleep. A sedge-warbler began to sing lustily before 1 a.m. His song was apparently spontaneous, and not due to any irritation on my part, as I was lying quiet and there was a dense mist. Even previous to that a moorhen's harsh note was from time to time heard. A thrush was pouring forth song from the top of a willow tree bathed in mist before 1.30.

A. C. MACKIE.

Long-Tailed Tits.—For the first time within my recollection a pair of long-tailed tits have built in our garden, and it may interest some of your readers to hear of their tameness and confidence. The first intimation we had of their intentions was one day at dinner, when one of the birds was seen clinging to the outside of the window and busily gathering fragments of cobwebs from the corners of the frames. For some seconds he was engaged in freeing his toes from a piece of wool which had become entangled in them; having transferred this to his beak he flew away. I noted the direction and waited in another window to see where the nest was. After a few minutes I saw him fly to a rose bush, the stems of which had been tied up against a tall fir-tree. In the centre of this bush I noticed the same piece of wool, which was to act as the foundation of the nest and which was, as yet, the only indication of a nest. I placed a wisp of wool on a neighbouring tree, and before I had gone ten yards both birds flew down and began to gather it up and take it for the construction of their home.

Two mornings afterwards I was awakened by hearing their twittering—wonderfully liquid and contented—in my bedroom, and watched one for some minutes gathering cobwebs from the window frame and after each flight returning to the handle of a Sandow's Exerciser. Having obtained a beakful of cobwebs he flew leisurely out of the window. Since that time they have been constant visitors to the greenhouse, coming in and out through a broken pane, and showing little or no fear in our presence.

The exterior of the nest is now completed and will, I hope, escape detection, as the rose-tree is now bursting into leaf, and in a few days the nest will be quite concealed.

Another nest I found was so like a chaffinch's that for some days I was deceived, and was much surprised, on a later visit, to find it domed.

Fylton Rectory, Bristol. A. E. MACKIE.

Wren's Roosting-nests.—The following incident will, I think, vastly strengthen the theory that wrens build extra nests solely as roosting-places, and not solely through any attempt to mislead their enemies, or through the nests being disturbed. Last year a pair of these birds hatched out a brood in a salmon tin which was jammed between the branches of a willow tree overhanging our pond. The nest on that occasion was very compact, substantial, and lined with feathers.

The young and old birds roosted in this during the winter. Early in the spring I cleared the tin of the old nest and was surprised, a fortnight ago, to find that a rough, non-feathered, meagre nest, had been built in it, evidently to supply

the place of the old one; this nest has since been utilised as a roosting-place. The difference between the two nests is wonderfully marked, each being, as I have shown, built for a different purpose. Two other roosting-nests have been made in the garden: in one case, at least, the structure was solely the work of one bird and was built with astonishing rapidity; on one occasion the bird brought the materials and fitted them into the nest twelve times in five minutes. As far as I know the egg-nest has not as yet been built.

A. C. MACKIE.

Appearance of Migrants.—In accepting statements relating to the early appearances of the spring migrants, we can hardly, I think, be too careful.

A correspondent writes telling me that he heard the cuckoo during last March. Another informs me he had both seen and heard the nightingale in his own garden in Hampstead; while another, also living in Hampstead, says they get no sleep in summer-time for nightingales, which in numbers sing so loudly (which I conclude to be song-thrushes) in his garden. Yet, all this notwithstanding, information relating to the early arrivals of migratory birds was last spring, in some papers, not only solicited, but accepted as genuine facts for publication in book form.

41, *Heath Street, Hampstead, N.W.* JAMES E. WHITING.
April 7, 1902.

Shoveller Ducks.—A friend of mine saw a couple of shoveller ducks yesterday (April 3) get up from the River Colne, near Uxbridge, he was quite close to them, and could see the long bill with the edges much dilated.

I do not know if these birds have been seen in this neighbourhood, and should like to have information on the subject.

Moorcroft, Hillingdon, Middlesex. C. J. MAURICE.

P.S.—On April 2 I heard the chiff-chaff, and only the same day I saw a hawfinch in our garden. I have seen one every year, but it does not stop there.

On April 7 I saw two swallows near Old Windsor, by the river.

Harbouring Little Birds.—I am curious to know whether any of your correspondents have had a similar experience to mine this winter. There is, on the top of a wooded hill in my grounds, a very quaint old garden, known as the Ard Glas. (or *Blue-Garden*), walled round and accessible by a locked door and range of stone steps. This lovely and lonely spot is full of very large rhododendrons of the *Ponticum* and other common old kinds, growing in this favourable climate to an immense size, and flowering hitherto every year in huge masses of bloom. This spring, however, in climbing up for the first time to the garden after the long snow and hard weather, my consternation was great to find that about a dozen or more of these grand rhodos. were practically dead. Scarcely a leaf remained on them, and such as still existed were white, as if dipped in whitewash. At the bottom of the trees were broken sticks and such masses of ill-smelling stuff as to suggest a very dirty and ill-kept fowl-house. There was nothing to be done but to cut down about ten of the beautiful trees and light a fire to purify the ground. Whether more trees, partially injured, will die, or whether the old roots will start afresh, remains to be seen. The explanation of the ruin of the trees is that enormous flocks of little birds were seen, night after night, while the snow lasted, to fly up towards the Ard Glas., obviously to roost there in the admirable shelter it supplied. Whether they were starlings or field-fares, or other birds, my informants who saw them could not tell. They must have literally perched in crowds on the rhodos. every night for weeks, to produce such a state of affairs as I witnessed. Poor little birdies! They were very sagacious! The whole wood (I need hardly say) is closed to "sport," and the crows and the rooks build their nests on the grand old trees with perfect security. So, within the double safety of the walls of the Ard Glas., entered by nobody for weeks together, and among the thick foliage of the twenty-feet high rhododendrons, they had an ideal bedroom for cold weather. I am very much vexed to lose my rhodos., but I forgive my little uninvited guests. Has any one else had a similar loss this spring?

Hengwrt, Dolgelly. FRANCES POWER COBB.

A Bird Poisoner's Bag.—A neighbour has seen a sack full of dead birds killed by a professional poisoner in these parts, and has described its contents to me. There were some rooks and a few pigeons; common buntings, greenfinches, chaffinches, and linnets were in numbers; yellow-hammers and mountain finches were the most numerous of all; sparrows were about 15 per cent. of the whole.

Market Weston, Thetford, EDMUND THOS. DAUBENY.
April, 1902.

Snow Buntings.—We have had a flock of these pretty little birds on the golf links at Littlehampton this winter for a number of weeks. Is not this a long way south for them? I did not send you a note at the time, as these notes are sometimes copied into the local papers, and we should probably have had everyone who could muster any sort of a rusty old firelock trying their best to kill them all.

I observed a large butterfly settle on a sign-post on March 6, and on going to see what it was, found a fine specimen of the scarce tortoiseshell in a wonderfully good state of preservation. He was still a little sleepy after his lengthy nap, and gave me time for a good long inspection at the distance of a foot before he flew lazily away.

Lyminster, Arundel. H. S. CLEATHER.

Crows and Sparrows.—Last Sunday I went out in the garden to feed the birds, when flying just above my head came two crows pursuing a sparrow, and the crows trying to cover the unfortunate sparrow with their wings, and one crow flying slightly in advance of the other. Can any reader of NATURE NOTES say if crows do attack full-grown birds for food? The frost was very severe. I scatter rough food for the crows in a field close by, as these large birds are very shy, and I have never before seen them so near the house.

Little Russells, Sutton, Surrey. M. T. CUTHBERT.
February, 1902.

[Were they not rooks?—ED. *N.N.*]

"Knaurs"? in Trees.—I am much obliged to you for your reference to Prof. Marshall Ward's notes on knurs. After perusing them I am convinced the disease he refers to is altogether different to the peculiar *tumours*, as boys, we used to knock out of the cortex of various trees. For the last three or four years when on holiday I have been observing and collecting these tumours, and have now some very interesting specimens by me.

I have found them in beech, holly, lime, oak, and other trees. Unlike the irregular excrescences Prof. Ward speaks of, they never bear branches or buds. At an early stage they are tiny, hard, woody tumours, growing between the layers of the cortex, probably between the soft and hard bark. They receive their nourishment from their capsules, and so increase at their periphery. If you excise a small piece of cortex over the growth, decay starts at that spot.

I have often found one the size of a walnut perfectly surrounded by cortex, not even in contact with the wood of the tree, though in structure resembling the wood. The strip of cortex lying between the tumour and the tree microscopically resembles normal soft bark and cambium layer. Sometimes after they have grown to the size of a walnut or larger, this posterior part of their capsule gives way, and decay may start at this point, or what sometimes happens, the tumour may form an adhesion to the wood of the tree. I have never found these adhesions very firm, making it difficult to knock off the tumour from the tree.

So much for facts. The cause can only be a matter of theory, and I venture to put forward this hypothesis. At some period of the tree's history cells from the cambium layer become displaced between the soft and hard bark, or between the various layers of the soft bark, and these take up their normal function of wood-forming. Such accidents are far from common in the fœtal life of many animals. By a folding inwards of the *epiblast*, cells which normally form skin and its appendages become displaced into abnormal positions, and in after life form skin, hair, &c., in this new position. Such tumours are easily recognised at the time of the operation, and are called dermoids.

The close analogy will appear on a moment's reflection. *In the Animal*

Kingdom, skin, hair, sebaceous matter, teeth, &c., are found, where normally such structures are not found.

In the Vegetable Kingdom, hard wood, resembling structurally the wood of the tree, but more condensed, is found between the layers of the soft bark as an independent growth, where, of course, normally, no wood is found.

Brighton. GEORGE MORGAN, F.R.C.S.Edin.

[Professor Marshall Ward has kindly referred me to what he says in "Disease in Plants" on Sphæroblasts. The passage is as follows: "*Wood-nodules* or *Sphæroblasts* are curious marble-like masses of wood, which protrude with a covering of bark from old trunks of beeches, &c., and can be readily dug out with a knife. The nodule has arisen by the slow growth of the cambium of a dormant bud, the base of which separated at an early date from the wood beneath; the cambium then closed in over the base, and laid on thickening rings all round the axis of the bud, except at the extreme apex. When the separation occurred the cambium of the wood beneath covered over the previous point of junction, and thus the woody bud was pushed out with the bark, and now protrudes, covered with a thin layer of the latter. Similar nodules are occasionally found on apple trees."—*Ed. N.N.*]

SELBORNE SOCIETY NOTICES.

Annual Meeting and Conversazione.—The Annual Meeting and Conversazione will be held on Thursday, May 29, from 8 to 11, at 20, Hanover Square, W., the President, the Right Hon. Lord Avebury, D.C.L., F.R.S., &c., in the Chair.

The Council will be glad to have the loan of suitable exhibits for the occasion, which will be under the direction of the following gentlemen: Botany, Mr. L. E. Taylor; Geology, Mr. Ed. A. Martin, F.G.S.; Microscopes, Mr. A. Holte Macpherson, M.A., F.Z.S.; Photographs and other pictures, Mr. A. B. Wilkinson; Zoology, Mr. Basil W. Martin, F.Z.S.

Members and friends willing to assist in this matter are requested to address the director of the department in which they wish to exhibit, care of Mr. R. Marshman Wattson, Dalmeny House, Monument Street, E.C. Tickets will be ready for issue on April 15, and Branch Secretaries are requested to send their applications for members of their branch by that date.

Members requiring tickets should apply to the local Hon. Sec., or in the case of members unattached to branches, to the Secretary, Selborne Society, 20, Hanover Square, W. *A stamped and addressed envelope* (*not small*) *must accompany each application.*

It is suggested that a Gilbert White exhibition be held in connection with this Conversazione, and the Council hope that those possessing any relics associated with the naturalist of Selborne, or copies of the various editions of his works, will kindly volunteer the loan of such objects by writing to the Secretary as soon as possible.

During the evening a lecture will be given by Mr. F. Enock, on "Insect Marvels of a Town Garden."

Council Meeting.—The next meeting of the Council will be held at 20, Hanover Square, W., on Tuesday, May 20, at 5.30 p.m.

New Members.—Mrs. Waterhouse, Surbiton; C. Soundy Munn, Esq., Surbiton; J. G. Cleghorn, Esq., Hetton-le-Hole; Sir Guy Campbell, Bart., Thames Ditton; Thomas Atkin, Esq., Leicester; C. E. Collins, Esq., Leytonstone; W. Long, Esq., Thornton Heath; W. W. Topley, Esq., Croydon.

Donations and Subscriptions.—The Council beg to acknowledge the following donations: George Avenell, Esq., 21s.; Mrs. E. Phillips, 21s.; J. Ward Daw, 2s. 6d.

Subscriptions over 5s.: J. H. Masters, Esq., 10s.; Miss Hall, 10s.; Lady Jenkyns, 10s.

NEWS FROM THE BRANCHES.

Clapton.—On Saturday, February 15, a lecture was delivered at Sigdon Road Schools, by Mr. J. W. Briscoe, entitled "A Glimpse of Jersey, Brittany and Norway," illustrated by lantern views. The Winter Session of this branch was brought to a successful close on March 22, when the Annual General Meeting was held. After the election of officers and other business, Mr. Charles Nicholson, F.E.S., read an instructive paper on "New Stars."

FIELD CLUB RAMBLES.

May 3.—Ramble round Northwood. Train leaves Baker Street at 2.21. Take return tickets to Northwood, 1s. 6d. Through tickets issued from all stations on the Metropolitan Railway. Tea at "Old Greene Man," Batchworth Heath. Guide, Mr. J. E. Whiting.

May 10.—Ramble round Marden Park. Take cheap tickets to Woldingham, 1s. 6d. from London Bridge, L.B.S.C.R., 2.55; Victoria, L.B.S.C.R., 2.30. Guide, Mr. Muhlberg.

May 17.—No ramble.

May 24.—Theydon Garnon and Church. Meet at Chigwell Lane Station at 3.5 p.m. on arrival of 2.8 train from Liverpool Street (G.E.R.). Return ticket, 1s. 9d. Field paths will be taken up to the Church, which will be inspected, and arrangements made for tea, and an alternative route taken back to the Station. Leader, Mr. S. Austin.

May 31.—Round Weybridge. Train leaves Waterloo at 2.29. Return fare 2s. 10d. Walk to St. George's Hills. Tea at Swiss Cottage 5.15. Guide, Dr. Willson.

June 7.—Burnham Beeches. Guide, Mr. Hunt. Full particulars in June Magazine.

Mrs. Brightwen has kindly undertaken to arrange a ramble for June 28, including a visit to her interesting estate, The Grove, Stanmore. Further particulars will appear in our next number.

The visit to Selborne announced in our last issue will probably take place on July 21 or 28; but all names of those intending to join should be sent to Mrs. Percy Myles, 7, Lincoln Street, S.W., before May 31.

ANSWERS TO CORRESPONDENTS.

Ethel G. Woodd.—We could find no insects in the buds. Adult sparrows are not fond of insects, so that when not rearing young they feed on corn and such-like vegetable matter. It is to be feared that their weakness for young leaf-buds is similar to their taste for crocuses, *i.e.*, a liking for something sweet and moist.

S. P. H.—A friend has kindly referred us to Mr. Swinburne's "Astrophel and other Poems" (1894) as the volume containing the poem "To a Cat."

George Pernet.—Jefferies' blunder has been often noticed.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., Richmond, S.W.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

No. 150. JUNE, 1902. Vol. XIII.

SELBORNIANA.

Objects of the Society.—To preserve from unnecessary destruction such wild birds, animals, and plants as are harmless, beautiful, or rare. To discourage the wearing, and use for ornament, of birds and their plumage; except when the birds are killed for food or reared for their plumage. To protect places and objects of antiquarian interest or natural beauty from ill-treatment or destruction. To promote the study of natural history.

Annual Meeting.—Our report of this is necessarily held over until the July number.

Bird and Tree Day.—We have received from the Society for the Protection of Birds the Regulations and Conditions of the first annual competitions open to elementary schools in the East Riding of Yorkshire and in Berkshire for Challenge Shields and Prizes in connection with Bird and Tree Day. The day is to be in November and essays on birds and trees are to be written in September. No bird is to be taken or killed, no nests to be destroyed, and no eggs to be collected for the purposes of this competition, and any child breaking this rule will render the whole team sent in by the school liable to be disqualified. A detailed list of points to be noted in the essays are given in the two leaflets of rules. The King's birthday, November 9, has been suggested as a suitable date for tree planting, but it falls on a Sunday this year and Sir George Kekewich officially deprecated the making of an addition school holiday for this fête, so, perhaps, Saturday the 8th would be most suitable. We hope this introduction of the competitive element will not confine Bird and Tree Day to elementary schools. We should

BURNHAM BEECHES, SHOWING THE ARTISTS' HUTS.

[By kind permission of the Proprietors of the "City Press."

like higher grade and private schools to participate, and the occasion to become a general but humanised holiday.

Burnham Beeches.—The *City Press* for May 7 gave an admirable view of the hideous huts with which "artists" have disfigured this beautiful spot. By the courtesy of the publishers we are able to give a reduced reproduction of this. We have since been assured that these huts are absolutely indispensable to artists in winter, and that nearly all of them are removed in the summer. Were we officially guaranteed that none of them will be permitted to remain between Easter and Michaelmas we should be satisfied.

South Eastern Union of Scientific Societies.—We would remind our members that the Annual Congress of this Union takes place at Canterbury on Thursday, Friday, and Saturday, June 5, 6, and 7, under the Presidency of Dr. Jonathan Hutchinson, F.R.S.; that a subject of great Selbornian importance, "The Preservation of our Indigenous Flora," is to be discussed on the Friday afternoon; and that they, as belonging to an affiliated Society, can attend the Congress and receive its *Transactions* at the reduced payment of 2s. 6d.

Widened Piccadilly.—It would seem to be the mature verdict of Londoners that the London County Council has succeeded in "improving" Piccadilly without injuring it. In the reduced congestion of vehicular traffic, the public has good value for the £8,700 that has been spent. The result would seem fully to justify the action of those who promoted, as well as of those who opposed the scheme. The intentions of the former were usefully modified by the representations of the latter. Concern for the trees mainly inspired the opposition, and thus the Office of Works, and the County Council were led to devote infinite care to the arboreal aspect of the improvement. In the House of Commons Mr. Akers-Douglas explained that only sixteen trees had been cut down—of which eight were in a state of decay—and that forty-eight had been planted. Of these saplings, twenty have been placed along the pavement at twelve paces apart. There they stand in the company of five leafy veterans, which were previously inside the railings. One of the five occurs in the middle of the footway, and it argues a taste for the picturesque on the part of the County Council that a tree should be suffered to survive in that position.

Derwentwater.—We are glad to be able to congratulate our friends of the National Trust on the complete success that has now crowned their efforts for the acquisition of Brandlehow Park. As will be remembered, this scheme, which was commended to our notice at our Annual Meeting last year, involved the collection of £7,000 pounds within six months. This was accomplished in five months, and 108 acres of land of inestimable æsthetic value are thus secured in perpetuity.

A Gallery of Flower Paintings.—We are sure that no one who was led by our announcement last month to visit Mrs. Hensley's collection will regret having done so. So much of the

Iceland Poppies. By Mrs. Hensley.
By the courtesy of the Agricultural and Horticultural Association.

charm of her work resides in the colouring that no black-and-white reproduction can do her any justice. By the courtesy of the Agricultural and Horticultural Association, however, we are

able to give a sample which will at least exhibit the composition of one of her works.

Preservation of Wild Flowers.—"In answer to inquiries as to whether the Western Counties Committee for the preservation of ferns and wild flowers intend to employ officers in plain clothes to arrest little boys and girls found carrying bunches of wild flowers, we are authorised to state that the object of the Committee and of the Selborne Society is twofold: (1) To use drastic measures where such destruction is perpetrated as was proved in the case punished by the Wonford magistrates a little while ago; and (2) to try and educate children and others, persuading them that it is to their interest to protect these gifts of Nature designed by Providence for the joy of all beholders, whether rich or poor. Mr. John Burns, from the House of Commons, April 7, 1900, wrote Mr. J. W. Richards: 'I associate myself entirely with you in your desire to stop the ruthless destruction of the hedgerows and wildflowers from lanes and woodlands. The best way to prevent this is by the stimulation of the best latent feeling in the locality.'

> A primrose by a river's brim,
> A yellow primrose was to him,
> And it was nothing more.

"Mr. Burns has put the teaching of the Selborne Society and the Devonshire Association into a nutshell."—*Western Daily Mercury.*

Wild Nature Won by Kindness. — Even the common experiences of the amateur naturalist show how easily the confidence of animals may be won, even when an estrangement of many generations has to be overcome. In whatever area, large or small, animals are guaranteed protection they are quick to take advantage of the fact, and soon become familiar. In Mr. C. J. Cornish's volume, "The Naturalist on the Thames," there is a chapter which affords an admirable illustration of this. It is that in which he describes the results of the measures taken by the Thames Conservancy and by the various County Councils to protect bird life above the tideway. They are of the happiest kind.

The water-hen are so numerous that at Nuneham Lock they run into the cottages, and at other locks the men complain they eat all their winter cabbages. As many as forty at a time have been counted on the meadows. Mr. Harcourt has also established a wild-duck colony on and about the island at Nuneham. The island has a pond in the centre, with sedges and ancient willows and tall trees round. There the really wild ducks join the home-bred ones in winter. Lower down, the scene on late summer days is almost like a poultry-yard, with water-fowl and wild pigeons substituted for ducks and chickens. Young waterhens of all sizes pipe and flutter in the reeds, and feed on the

bank within a few feet of those rowing or fishing, and their only enemies are the cats, which attracted by their numbers, leave the cottages for the river and stalk them, while the old water-hens in vain try to get their too tame young safe on to the water again.

Kingfishers have increased fast and Mr. Cornish, during a row of ten miles down the river, saw more than twenty. Young swallows sit fearlessly on the dead willow boughs to be fed by their parents, reed-buntings and sedge-warblers scarcely move when the oar dips near them, and even the water-rats show no signs of fear, as a result, also, of the total prohibition of shooting.

The herons from Richmond Park have extended their usual nightly fishing ground, which formerly ended at Kew Bridge, four miles further down the river, almost to Hammersmith Bridge, and in place of coming late at night, under cover of darkness, have made a practice of flying down at dusk, and pitching on the edge of Chiswick Eyot. Their regular appearance led to various inquiries as to the nature of the "big birds like geese" which flew down the river and made a noise in the evening. . . . . Their footprints have been found on the mud opposite a creek in Hammersmith, round which is one of the most crowded quarters of the poorer folk of West London. The birds had been fishing within ten yards of the houses, which at this point are largely inhabited by organ-grinders and vendors of ice-creams, callings which do not promote quiet and solitude in the immediate neighbourhood.

This same matter of the relations of men and animals is the subject, also, of an interesting article in the *Spectator*. The writer remarks that birds are wonderfully quick judges of intentions, and gives numerous instances in point. But the cases of mammals noticed by him are perhaps even more striking.

Certain bears in the Yellowstone Park come to the hotel rubbish-heaps to be fed with kitchen waste, and allow ladies to photograph them; and the squirrels of the New York Central park are as familiar as are our London sparrows. Some correspondents of the *Spectator* have pointed this out recently as happening in the case of the Phœnix Park in Dublin, where the deer feed undisturbed between lines of soldiers firing blank cartridges, and the crowd gazing at them, and can hardly be driven off by the mounted men sent to make them "move on."

One will agree with the writer that these things offer a peculiarly pleasing prospect for our future town life and urban or half-urban parks. Results of the same kind may be absolutely counted upon whenever the creatures are not shot or molested.—*Daily News*.

Butterflies in Battersea Park.—Last year the London County Council obtained from our correspondent, the Rev. E. T. Daubeny, and other sources, nearly nine thousand larvæ—most

of them Red Admiral, Tortoiseshell, and Peacock—and, in view of hatching them, a special house was erected in the Botanical Gardens at Battersea Park. About 4,000 were hatched and released. The report to the Council published recently shows the mournful result. The release of the butterflies made no appreciable difference to the numbers already in the park. "An army of hungry sparrows and other birds were soon attracted to the spot, and a butterfly hunt of the fiercest kind was witnessed. Before two days had passed it was doubtful if a score of the hatched butterflies had escaped the hungry marauders and other enemies. Some flew from the park only to be caught by small boys, who immediately sold their captures to interested collectors." The Council, we are told, will not try again.

Photographic Survey of Surrey.—Nearly a score of societies of naturalists, archæologists and photographers have banded themselves together under this title "to preserve a record in permanent photographs of buildings of interest, antiquities, scenery, geology, natural history, anthropology, &c., and of portraits of notable persons, representations of passing events of local or historical importance, &c., and of old records, rare books, prints, maps, &c., so as to give a comprehensive survey of what is valuable and representative in the County of Surrey." Other counties please copy.

Lodgings at Selborne. — "Selbornian" sends us the following: "It may be convenient and useful to lovers of Selborne to know that very comfortable and reasonable lodgings may be had in the village of Selborne. Ten days botanising in this delightful neighbourhood were made more enjoyable by the nice, home-like lodgings the writer was fortunate enough to find at the following address: Miss Phillips, Myrtle Cottage, Selborne, Hants."

EXPERIMENTAL AND DEDUCTIVE BIOLOGY.*

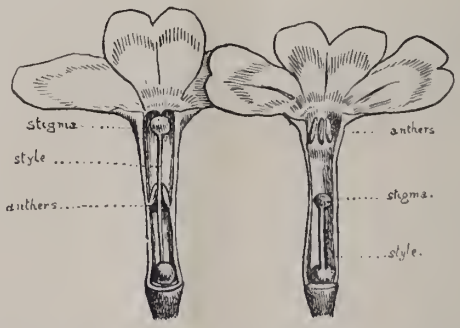
By the Editor.

WE should be the last to depreciate field natural history. For the observation of distribution, habitats, ecology and habits it is indispensable. For the study of structure, external or internal, or for the elucidation of the systematic relations of forms, it is not so: they can often be more conveniently investigated in specimens isolated in captivity. For anything of the nature of physiological research

* *The Primrose and Darwinism.* By a Field Naturalist, M.A.Camb. Grant Richards. Price 6s. net.

field observations are well nigh useless, experiment on captive organisms practically inevitable. In botanical work, for instance, it is very difficult to keep a series of wild examples of a species under continuous observation whilst some of them are under conditions so differing as to amount to a control experiment. On the other hand, every experimentalist has experienced the difficulty of so isolating the conditions as not to interfere with the normal life of the species.

Most critics, we think, would agree that in this task Darwin was eminently successful; and yet practically the entire gravamen of the anonymous and belated work under notice is that Darwin, by the method of his experiments upon plants, placed them in such unnatural conditions as to vitiate altogether his results. "A Field Naturalist's" main contention is, that in the experiments as to pollination with or without insect agency, the net used by Darwin, one with meshes one-tenth of an inch across, would be of itself sufficient to induce sterility or the incomplete maturation of pollen or stigma.

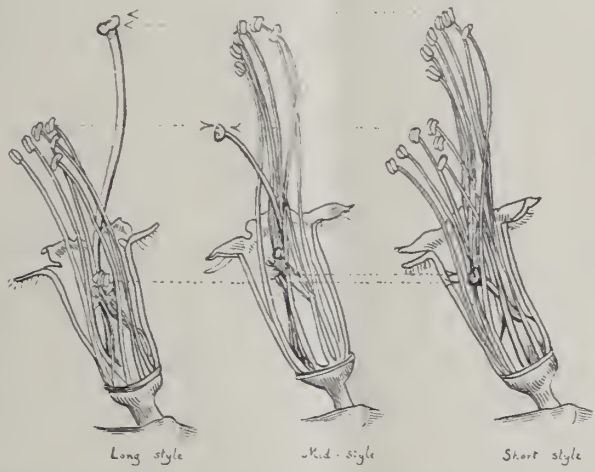


DIMORPHIC HETEROGONY IN THE PRIMROSE. Explained by Darwin as an adaptation for reciprocal cross-pollination, and by "A Field Naturalist" as a mere variation.

[*Kindly lent by Mr. Grant Richards.*

We do not know whether the publisher hopes to attract some of the political devotees of the primrose, and certainly the whole trend of the work—which is, we gather, from the pen of a somewhat elderly writer—of an extremely conservative, or perhaps we should say radically reactionary character. Had it appeared twenty years ago we should have admitted that it presents a cogent chain of destructive criticism; but to-day the whole position is altered. Even throughout the years which separated the publication of the *Origin of Species* from that of *Cross and Self-Fertilisation*, viz., 1859—1876, though evolution was a triumphant theory, natural selection was on its trial, and the progressive acquisition of special contrivances for securing cross-pollination, as an illustration of evolution by natural selection, could not be

said to have been as yet demonstrated. But, even then, the cardinal principle of evolution, that every structure is either of use to its possessor or has been of use to some ancestral form, had forced its acceptance upon the minds of all students of organic nature. This principle by itself condemns all such purely negative criticism as that of "A Field Naturalist" as wholly inadequate; while, whatever may have been the rashnesses of many of Darwin's followers, it also furnished a logical basis for a system of deductive biological reasoning. "A Field Naturalist," dealing mainly, though by no means exclusively, with the two forms of the common primrose, argues from the fact that the short-styled primrose when self-fertilised "is fully and completely fertile," that the two forms "are mere varieties" and not a functional variation. He, however, offers



TRIMORPHIC HETEROGONY IN THE PURPLE LOOSESTRIFE. Explained by Darwin as an adaptation for reciprocal cross-pollination, and by "A Field Naturalist" as a mere variation.

[*Kindly lent by Mr. Grant Richards.*

us no explanation of the meaning of these varieties, or of the colour, perfume, honey, markings, nectaries, &c., in flowers in general. A working hypothesis, when it is found to harmonise group after group of facts differing widely *inter se*, justifies its acceptance as a true theory of Nature's *modus operandi;* and this is what has been continuously happening to the theory of evolution by natural selection since 1859. One lesson certainly has been abundantly forced upon our notice during that period, namely that Nature has frequently several widely different methods of arriving at the same result. If, as Darwin showed, she has various contrivances for favouring cross-pollination, she has also, as Professor Henslow has abundantly illustrated, many

for securing self-pollination. At the same time we do not remember a single case in which the cleistogamic flowers, upon which "A Field Naturalist" much insists, are the sole flowers produced. Nature's endeavour would seem to be to secure the formation of seed, cross-fertilised seed, perhaps; but, whatever happens, seed.

Darwin's followers may have often generalised crudely enough, while certainly the statement, quoted from Mr. Wallace's "Darwinism," that Darwin discovered that primroses are absolutely barren if insects are prevented from visiting them, is a complete mis-statement of his conclusions. "A Field Naturalist's" criticism may be of service to botanists, if only by reminding them of how much yet remains to be done in this particular direction of research. He might have considerably strengthened his case had he, in the matter of *Arum maculatum* referred to Father Gerard's "Science and Scientists"; but, with regard to his more especial subject, we would call his attention to the fact that "the pale primrose" is more strongly scented and remains conspicuous at dusk.

SPRING IN WESSEX.

JOHN BURROUGHS, no mean judge of English scenery, says that its dominant note is "mellowness." The American naturalist was enchanted alike by the mouldering castle wall and the mediæval cathedral of the city, and by the lichened roof of the homestead and the park avenues of immemorial elms in the country. In few places, perhaps, can a combination of these features be better seen than along the banks of the Itchen, within half a mile of the centre of Winchester, the old capital of Wessex, and indeed of England.

On a spring morning, as the pilgrim strolled by the somewhat swift stream he would fain stop to think how little the surroundings have changed since Izaak Walton frequented the spot. Izaak lies buried in that great cathedral behind, that cathedral which, externally, says Mr. Francis Bond, is "like some stranded prehistoric monster," but which, internally, is so grandly calm and severe as to be a fit resting place for the old angler. "God never did make a more calm, quiet, innocent recreation than angling," wrote Walton, and the words form the epitaph of another of the craft, Francis Francis. As we thus reflect, two or three fine trout, of chalcedonic transparency, are seen with their heads against the current. Shortly, one trout leaps at least half a foot out of the water, snatches at some unseen object, and instantaneously flops back, making ripples which do not die away for some moments:

> "Through the clear stream the fishes rise,
> And nimbly catch the incautious flies."

The trout has vanished among the mass of milfoil, crow-silk, and star-wort, which are sorted out and bent over southwards by the flow; where the fish lay, the pebbles of the bed are now plainly discernible.

In a sluggish tributary, some boys are catching minnows with the customary bent pin in place of a fish-hook. "No, they are not sticklebacks, sir, they are *real* ones—real minnows." The minnows are astoundingly numerous; some lie side by side in long files, twenty or thirty abreast, but by the sluice gate they form a sort of catharine-wheel, which constantly changes into an undefined labyrinth. A jack, probably a two-pounder, lies as stiff as a ramrod; a small stone makes him dart amongst the weeds in such mad haste that the mud is churned up in sufficient quantity to cover his escape. He again settles, but the wariest fisherman cannot land him now. On the surface numbers of waters-skaters—Gerris is the entomological name—are gliding in a giddy maze. A brimstone butterfly, the first of the season, flits by. It is not of this year's hatching; it is an insect of last autumn and has withstood the winter and the sharp frosts of March.

But we spoke of scenery. The Itchen is crossed by rustic bridges of different kinds, and a hundred yards away is a weir, backed by a flour mill whose white walls betray the industry followed within. Close by is an inn, and its lower windows are not more than two feet above the water's edge. Even nowadays, the crypt of the cathedral is liable to be flooded. The mill shuts out the old hospital church of St. Cross, with its almshouses, and its bedesmen who are dressed in black gowns with a silver cross on the breast. The famous college of William of Wykeham is near the mill. In the foreground is a huge chalk bluff, covered scantily with grass, and edged with pine trees on the escarpment. More chalk hills rise and sink in the distance, illustrating, as hills of no other geological formation illustrate, Hogarth's line of beauty. At our back are cottages abutting on an old grey flint wall, which is bedecked with pellitory, saxifrage, ivy-leaved toadflax, and wallflower. Ivy-leaved toadflax is certainly an alien, and, according to Loudon, the wallflower was introduced only in 1573, yet what a firm roothold the intruders have taken.

Everything seems old; the very houses have an ancient architectural look. Here is a half-timbered one with tiles of orange and red, cushioned with thick moss; the square windows, the sharp gables, the elbowed roof, the outstanding chimney stacks, carry us back to days of Raleigh and Drake. Another house has more windows, as Dickens humorously puts it, than a lazy person would care to count on a summer's day. The cottage behind us has actually ogival windows,—the builder must have been a wag. But, after all, dwellings are inanimate, whilst the poplars, horse chestnuts, willows and ashes on the bank are full of lusty life. Like those spoken of by the Hebrew poet, they are planted by the water side. The ash buds are

jet black. A story tells us that an old farmer first learnt this fact by reading Tennyson. Many buds have opened, and the clustered flowers give the tree a feathery appearance. Mr. Grant Allen once wrote that he could tell the ash from a railway carriage at half a mile's distance, because the branches curve downwards and then upwards, unlike those of any other tree. The leaves of the sycamore are beginning to unfold, and one notices that they have been doubled up in the bud like a fan. The dock at our feet has its leaves rolled back towards the mid-rib on the under surface; the currant leaves in the garden are plicated like those of the sycamore. On that triangular spit of land formed at the junction of two streams the gooseberry is just leafing, and in the nursery garden by the mill, red Ribes, white Prunus, and yellow Forsythia compete for the first claim on the eye. A cottage porch is carpeted by the snowy blossoms of the vernal whitlow grass; each plant has a rosette of leaves which would stand on a shilling piece. In the alluvial meadow, the marigold, Clare's "horse-blob," grows rank and large. Aucuba, laurustinus, and barberry are dotted in the shrubbery under the old wall. The larch, that conifer which is unique in shedding its leaves each autumn, is becoming distinctly pink:

> "Rosy plumelets tuft the larch,
> And rarely sings the mounted thrush."

That tan-faced terrier, which, drawn by some strange affinity, has sprung from nowhere and is now following obediently for the third morning in succession, will soon for the third time have to be dismissed.

A little comedy now begins. A pair of chaffinches are sitting on the black poplar. The male bird, with ruddy breast, and head porcellaneous like that of the peacock, flutters down a little, trapezes, and glides swiftly back in a parabolic curve to his former perch, crying angrily, spink, spink. He repeats this performance several times, then the hen bird assists. Ah! they have commenced to build a nest in the tree overhanging the ivy fringe of the wall top. They resent interruption, and will not proceed. Close by hang two cages, one containing a tame goldfinch and the other a bullfinch. The latter is silent, the goldie sings Frank Buckland's song, sippat, sippat, slam, slam, slam, siwiddy. For some time the chaffinch is surly, at last his suspicion flies, and bits of moss and hair are carried to make the cunning nest. In it will be placed pale green eggs blotched with claret.

> "Soon as the nest had cradled eggs a-twin,
> The jolly squirrel climbed to look therein."

A wren runs along the bank like a mouse, twitching his perky tail as he goes. His long song is a series of quick warbles, but it is altogether different from that of the willow wren which arrived a day or two ago. This bird employs a sweet cadence and lilts merrily until it reaches the plaintive "dying

call." Different again is the song of the chiffchaff in the garden there. Four or five uniform ringing notes form the burden; chiff-chaff, chiff-chaff, chiff—one wonders that it does not tear out its little throat. Ever gay, the thrush occasionally drowns the other melodists, and most refreshing of all, we hear the cry of the blackbird, I-am-here, flu-u-e-o. The last birds to be noticed are a pair of pied wagtails which are wooing each other by the stream side, and are so tame that the field glass may be put in its case for the while, especially as the willow wren has gone in quest of a better situation for displaying himself.

WALTER JOHNSON.

Battersea, S.W.

REVIEWS AND EXCHANGES.

More Tales of the Birds. By W. Warde Fowler. Macmillan and Co. Price 3s. 6d. net.

A truly delightful book! All the more delightful, perhaps, to a jaded reviewer because of late we have been inundated with a very sea of bird (and beast) stories, highly praiseworthy, of course, from the motive point of humanity, but utterly lacking in any other claim, whether of natural talent, originality, literary style, or even simple realistic naturalism, for appearing in print at all, stories "written for a purpose," and negativing, if not contravening, that purpose by the fact of the writers having no proper equipment, either of natural genius or literary craftmanship for the task. From all fear of such criticism Mr. Warde Fowler's previous record as an author must necessarily exempt him. Let it be said at once, therefore, that there is scarcely one of these tales that might not be read with interest and pleasure, even by those who ordinarily take little of either in the cult of birds or humanity, for the mere sake of the literary and artistic charm, the easy, unforced style, which, when added to the author's power of close observation, lend a glow of beauty and picturesqueness to even the simplest bit of realism.

Perhaps the least noteworthy, because most commonplace of the series is that called *The Sorrows of a House Martin*. On the other hand, if we were to single out two for special praise, they would be perhaps the first and last; the first, *A Lark's Nest*, because it is simply a literary gem, a perfect little idyll, exquisite in colour and freshness, of the battle of Waterloo; while the latter, *Too Much of a Good Thing*, might be read with advantage, not only for its delightful mingling of tenderness and humour, but as a gentle corrective to a certain element in the literature to which we have already alluded and which has been stigmatised (much to our indignation, but not wholly undeservedly) as "mawkish sentimentality." The sorrows of the good "poet" and his wife under the tyranny of the birds to whom they give sanctuary are capitally described, and offer a valuable lesson on the results of all such kindly but ignorant attempts to interfere with the balance of Nature. In the "poet's" case we should have remembered that humanity embraces a wider range of animal life than blackbirds or even birds in general, and should have adopted Nature's own remedy. *We* should have kept a cat!

The illustrations by Miss Fuller are really good, and the volume tastefully got up. Altogether a charming gift book for anyone, young or old, *after* one has read and enjoyed it oneself.

Cameos from Nature. By Mrs. J. T. Gumersall. S. W. Partridge and Co. Price 5s.

Twenty-four chapters—two for each month—appreciatively written, illustrated by twenty-five photographic views. Some few phrases, to say nothing of

her enthusiasm for Shakespere's Warwickshire, suggest that the authoress is an American, and there is occasionally a slightly excessive flippancy in her style, nor is much information to be gathered from her pages. The illustrations too, beautiful as they are, seem somewhat aimless. The writer is, however, by no means lacking in enthusiasm for English scenery and has dipped far and wide into the modern literature of her subject. The printing is excellent, so that the book as a whole forms a pleasing gift-book for any Nature lover.

A Course in Invertebrate Zoology. By Professor H. S. Pratt, Boston, U.S.A., and London. Ginn and Co. Price 6s.

There are but 210 pages in this text-book, twenty of which are occupied by a very terse glossary and the index, and fourteen by an appendix on classification, so that only 176 remain for the guide to the dissection of the thirty-four types chosen. These are most judiciously selected, fourteen being taken from the Arthropoda and four each from the Mollusca and the Protozoa. We miss the graphic description of naked-eye characters in "Huxley and Martin," and the actual description of the dissections is necessarily very brief, whilst as there are no illustrations, an accompanying atlas like Prof. Howes's is a desideratum, though the student is meant to draw everything himself.

One and All Gardening, 1902. Edited by E. O. Greening. Agricultural and Horticultural Association. Price 2d.

This is the seventh annual issue of this wonderful production—200 pages and more than as many illustrations for twopence! All horticultural tastes are catered for: roses, peas, potatoes, orchids, and water plants, pergolas, garden seats, hints to exhibitors and for the owners of small gardens, all find a place; and, as Mr. Greening means his hardy annual to be a perennial in interest, there is no repetition from previous numbers. Of course, the whole thing is an advertisement, but in this case it is difficult to say which is the more valuable, the seeds and other wares of the Association or the advertisement itself.

Other Worlds; Their Nature, Possibilities and Habitability. By Garrett P. Serviss. Hirschfeld Bros. Price 6s. net.

Though not written with the graphic pen of a Proctor, this is a trustworthy account of our present knowledge of the planets, which, as the writer says, has much enlarged since the date of the works of Proctor and Flammarion. It is well illustrated with, among other views, a chart, after Schiaparelli, of the wonderful surface of Mars, and with six charts of the zodiacal constellations.

Received: From the Agent-General for Western Australia, four large-scale maps of the Coolgardie district; *The Victorian Naturalist* and *The American Botanist* for April; The Report of the Rugby School Natural History Society for 1901; *Science Gossip*, *The Naturalist*, *The Irish Naturalist*, *The Naturalists' Journal*, *The Humanitarian*, *The Animals' Friend*, *Our Animal Friends*, and *The Animal World* for May.

NATURAL HISTORY NOTES AND QUERIES.

Hedgehogs and Eggs.—I have noticed several letters recently *re* hedgehogs eating eggs and the entrails of hens whilst sitting, which I do not doubt for a moment, as I know they are very fond of flesh food of almost any kind. In "History of Selborne," I believe it is recorded where one was known to have fed on the udder of a living sheep, the same having been caught by its wool in some briars and so held fast. I have a pet one in my possession which, although very fond of meat, never molests the hens or eats their eggs, for during last summer his run lay straight across a large fowl pen containing generally as many as twenty chickens and sitting hens, and he invariably went to sleep in a corner of the hen house under the boarded floor over which hens where most of the time sitting. I have always been led to understand how fond they were of apples: well, I have constantly kept apples in part of his run and examined them regularly, but could never find any trace of them having been bitten by him. I am looking for him

to awake out of his long sleep, but I suppose the weather as yet is too inclement for him, although the month of May. F. G. SAVAGE.

Early Life of the Young Cuckoo.—Surely the theory, put forward on page 85 of the May number, to explain why the cuckoo does not build a nest for itself is unsound. It seems to me that if the cuckoo was in the habit of building a nest for itself, then its young would not have implanted in their nature a desire to clear everything out of the nest. It is because they do *not* build nests for themselves that their young *have* this desire, and the obvious reason for such a desire is that the foster-parents—being always smaller than an adult cuckoo—could not make adequate provision for more than one foster-child: if the birds had to cater not only for their own young but also for more than one foster-child, then none of them would be strong enough to combat the struggle for existence, and the race of cuckoos, far from being multiplied, would be much reduced. Hence, for the preservation of the species, it was necessary that an instinctive desire to clear out all other occupants of the nest should be implanted or evolved in the young cuckoo. The habit of laying eggs in other birds' nests produced the instinct in the young to reign alone in the nest; without such habit the instinct to reign alone would never have existed.

Ridley Hall, Cambridge. A. C. MACKIE.

The Young Cuckoo.—Can any one enlighten me as to whether it is true that the young cuckoo kills the foster-mother while still a nestling? I have been told by a native of Sussex that the young cuckoo nips the throat of the elder bird when the latter is in the act of feeding it.

Carlyle Lodge, Canonbury Place, N. CHAS. E. J. HANNETT.
May 8.

Cuckoo Lore.—"It is well, according to the Cornish villagers, to hear the cuckoo from the right, because that is a favourable omen and brings good fortune.

"Shropshire folk in the old days had their own notions of what was best to do when the call of the cuckoo was heard in the land. They left off work and devoted the rest of the day to merrymaking and the enjoyment of the 'cuckoo-ale.'

"Not so long ago it was a very common belief that if a young woman ran into the fields early in the morning to hear the cuckoo, and as soon as she heard it, took off her left shoe and looked into it, she would there find a man's hair of exactly the same colour as that of her future husband."—*Evening News.*

Wood Pigeons in Canonbury.—For the past two years a pair of wood pigeons have been seen in this neighbourhood. Very often I have noticed them walking in and about the gardens of this vicinity.

Carlyle Lodge, Canonbury Place, N.W. CHAS. E. J. HANNETT.
May 8, 1902.

Our Earliest and Latest Songster.—I cannot profess to say from actual personal knowledge which of our songsters is the earliest to begin its melody in the morning, but after many years' observation of birds and their notes, I look upon the robin, and not the thrush, as the latest day-bird to sing. Last evening (May 1) a robin was singing loudly in a neighbouring coppice some time after all the thrushes in the vicinity had ceased their songs for the day. The robin, too, is the little bird seen flitting about after the dusk has fallen, and in fact our familiar friend "Bob" keeps shocking bad hours.

Fyfield, near Abingdon. W. H. WARNER.

I notice in the April number of the *Selborne Magazine* an enquirer asks which is the first of our songsters to sing in the morning and the last at night. I thought, perhaps my experience might be of some use. I find from observation, extending from March 14 to 28, that the lark is the first to carol forth his song at 4.25 a.m. on the first date, gradually getting earlier, until 4.10 a.m. on the latter date: on each date the light was only just breaking through the darkness. The larks were followed soon afterwards by the thrushes, then the greenfinches and robins, and by 5 a.m. the trees and hedgerows were alive with songsters. The thrush I believe, to be the last singer at night, except the nightingale. I heard one last night, April 8, at 8.30 p.m., it was then almost dark and all other

birds were silent. The nightingale I first heard at midnight March 30, a bitte cold night. They are plentiful in this neighbourhood this season.

57, *Shakespeare Street, Stratford-on-Avon.* F. G. SAVAGE.
May 9, 1902.

Curlew.—The following incidents were told me by my brother, who has a farm in Breconshire, the hills round which are a great haunt of the curlew from March to August. I write it in his words: "Some years ago I asked my shepherd to get me a curlew's egg, and although there were a lot of birds about he never could find a nest; but at last he came on one with three eggs in it. As he was going on his rounds he did not take the eggs then, but marked the place and came back for them in about an hour, but they had gone, and he declared to me that the old bird took them away. This I doubted, till on April 28 in this year, I myself found a nest containing three eggs, two of which I took, and carefully marked the place. About half an hour later I passed it again: the curlew fled away from the nest and the egg was still there; but when on May 1 I visited the nest, there was no egg to be found, though I came upon the nest quite easily. It is very unlikely that any one would have passed the nest, and I cannot but think my shepherd's theory must be correct."

Could any of the readers of NATURE NOTES throw any light on the subject?

A. C. GREEN.

Surgical Skill in Birds.—A correspondent sends us the following extract from the *Bideford Weekly Gazette*, with a very natural request for corroboration or authoritative denial: "Some interesting observations concerning the surgical treatment of wounds by birds were recently made by a Swiss naturalist. He observed that the snipe had often been observed making with its beak and feathers a very creditable dressing of a wound. It had even been known to secure a broken limb by means of a stout ligature. The most interesting example was that of a snipe, both of whose legs he had unfortunately broken by a misdirected shot. He only recovered it on the following day, when he found that the poor bird had contrived to apply dressings of down from other parts of its body fastened by congealed blood, and a sort of splint of interwoven feathers to both limbs. In a case recorded by another naturalist a snipe which was observed to fly away with a broken leg was subsequently found to have forced the fragments into a parallel position—the upper fragment reaching to the leg joint—and they were secured there by means of a strong band of feathers and moss intermingled."

Sparrow.—I am glad to see in this month's number that Mr. Hannett has a word in favour of the sparrow. I have kept tame sparrows for the past twenty-two years, and know from experience that house flies cannot exist where the good little birds live. I have seen those in the garden killing the common black beetle.

100, *Warwick Gardens, W.* EDITH J. HIPKINS.
May 2, 1902.

Birds and Berries.—From observations extending over several winters, I am of opinion that thrushes and missel-thrushes only feed on the berries of the holly when hard pressed by hunger. I took particular notice this last winter of two fine large holly trees which were covered with large berries. During the spells of hard weather we have had, I have seen as many as eight thrushes and a fieldfare feeding on them at one time; but as soon as the weather got milder not a thrush could be seen, and the trees are now bearing quite a large quantity of berries, which I do not think would be the case if the birds eat them as an ordinary article of food. F. G. SAVAGE.

Black Woodpecker.—Three or four years ago I was informed of the occurrence of this bird, and wrote to a friend who lived near where it had been seen, to put him on the look-out. This friend and his wife are reliable and enthusiastic ornithologists, and their son is sixteen years of age. I have just received the following letter from him:—

"On the 12th of this month my wife and Dick were biking from ——. They were between the two entrances to ——, when they saw a bird flying in the undulating woodpecker way across the road: it was almost immediately followed by two others. The birds were black. One of them called, and Dick remarked, 'What a

funny thing, that is a black green-woodpecker.' I did not see the birds, being some distance ahead, but I have very little doubt that the observation is correct. Morris says if there are three of these birds anywhere near each other, two of them are sure to hunt the third away, and this is exactly what these birds were doing. Dick did not know there were such things as black woodpeckers."

Names and places are suppressed. The black woodpecker is far too great a rarity for its whereabouts to become known to the pot-hunting world with any degree of safety. That it is to be seen in the Eastern Counties I am convinced; and I intend shortly to make the journey to the place that it frequents.

Market Weston, Thetford, EDMUND THOMAS DAUBENY.
April, 1902.

Suet-eaters.—A friend who feeds the birds during the hard weather, hung up pieces of suet at the side of his porch last winter, to save them from starvation. He sends me the following list of the birds that availed themselves of his kindness. The rooks and jackdaws robbed the other birds if they managed to carry a piece on to the lawn:—

Great-tit	Hanging suet on porch.
Blue-tit	,, ,, ,,
Cole-tit	,, ,, ,,
Marsh-tit	,, ,, ,,
Nuthatch	,, ,, ,,
Sparrow	,, ,, ,,
Chaffinch	,, ,, ,,
Robin	,, ,, ,,
Thrush	,, ,, ,,
Hedge-sparrow	Feeding on fallen scraps.
Blackbird	,, ,, ,,
Missel-thrush	,, ,, ,,
Pheasant	,, ,, ,,
Pied-wagtail	,, ,, ,,
Rook	If he dared.
Jackdaw	,, ,,
Partridge	,, ,,

One of the reasons of the size and variety of this list was the absence of cats.

Market Weston, Thetford, EDMUND THOS. DAUBENY.
April, 1902.

Starling.—For two years in succession a pair of these amusing birds have selected the roof of this house as a suitable nesting-place, obtaining entrance through a broken or displaced slate near the chimney-stack. They have proved themselves most indefatigable nest-builders. Last year they persistently carried straws and rubbish into the hole in the roof, from the middle of April to the first week in June, when they disappeared. This year they are again busy. I first noticed them conveying straws, &c., into the hole in the roof so early as March 3, and now (May 2) they are still building. I presume it is the same pair. They work principally in the evening, and frequently drop long straws in their passage to the nest. They could not have bred last year, as they were so busily occupied in constructing the nest as practically to take up the whole of the breeding season. What is the reason of such a queer proceeding?

Fyfield, near Abingdon. W. H. WARNER.

Early Nesting of Wild Duck.—While walking along the banks of the Cam, on April 27, a wild duck rose from some reeds which fringed the stream. My search for her was unattended with success, although, as the duck alighted not twenty yards away, and was quacking uneasily, I felt sure that there must be a nest near at hand. I continued my search, and after a few minutes, on putting my hand under some sodden reeds, I felt something move and was surprised to find a "flapper," three or four days old. I, perhaps unwisely, brought it home, only to die of strangulation through its head becoming caught in a hole in its blanket: otherwise it would, I think, have lived, as it readily swallowed bread and milk. Was not this unusually early in the season for young wild ducks? The first egg must have been laid not later than March 25—earlier if the number eggs was larger than ten.

Ridley Hall, Cambridge. A. C. MACKIE.

Rooks and Young Birds.—With reference to Mr. T. Cuthbert's query, page 98 of NATURE NOTES for May, I may say that when living in Northumberland, I have often seen rooks chasing the blackbirds that came to be fed at the window during hard weather, and several times found mangled remains of small birds—generally blackbirds—in positions that left no doubt as to their having been eaten by the hungry rooks.

The Gables, Wirksworth. C. E. MEADE-WALDO.
May 3, 1902.

Toads and Lizards in Ireland.—I have seen both, the former, curiously enough (see Benwyan's notes in the February number), at Caragh Lake, co. Kerry: this is on the opposite side of Dingle Bay from Dingle Promontory. The lizard I saw frequently, 1870-3, about Caragh Lake.

T. HARTLEY.

Bees (p. 77).—It is interesting to know from his own pen that Mr. Webster is a "recognised" authority on bees, that he has written a book on them, kept them for a quarter of a century, and handled them by the million. My pretensions as an old bee-master do not run to this. Writing books proves authorship, not authority, and I am not going to write one. There are enough already. Many people hold the opinion that bees do a little drone-killing now and then, and even Mr. Webster allows the possibility of this, for he owns that "bees do nothing invariably," and also he "cannot state that in the course of years a drone has never been stung by a worker." Death by stinging is their "ultimate" fate, as Darwin clearly holds.

No doubt the majority of drones come to the same kind of end as other short-lived insects. If, however, they will not clear out of the hive when ordered to do so, but return after being repeatedly hustled out of house and home, stronger measures are taken as a last resource.

Bees often fight bees from other hives, and when robbing takes place kill each other wholesale. A neighbour who keeps bees on a large scale says: "I have often observed them trying to sting strangers on the alighting board," and "drones are mostly found dead on the ground in front of the hives." He also says "they are by no means careful how they use their stings."

Bees may stab other bees without losing their stings, the skin not being strong enough to retain them. Indeed, I find they do not always leave their stings in me. I have been stung twice this year and in one case the sting was not left behind.

This may be the solution of the question.

Market Weston, Thetford. EDMUND THOS. DAUBENY.
April, 1902.

Helix aspersa.—When walking along the seashore at Trouville-sur-Mer, Calvados, France, on April 30 last, I was surprised when I noticed several Helix aspersa crawling along the sand (there being no shingle at this place) at about high water mark. I do not think these common snails could have been accidentally carried to this position, as I found them at a great distance from each other. I should be glad if the Editor, or any reader, of NATURE NOTES can tell me of a similar find to the one just mentioned, or any cause that may be assigned for H. aspersa being so found?

Carlton House, Herne Hill, S.E. RALEIGH S. SMALLMAN.
May 6, 1902.

Variations in Stamens of Crocus.—The length of the stamens in *Crocus vernus* seem to vary with the colour. The yellow blossom variety has stamens much longer than the pistil, whilst the white and light purple-coloured varieties have shorter stamens than pistils. As these flowers are much visited by bees, is this arrangement to ensure cross fertilisation?

Cranbrook. A. W. HUDSON.

Height of Trees in England.—Can any of your correspondents say what is the height of the tallest tree or trees in England? I know of a tall tree not far from Norwich, related, I suppose, to the spruce fir; it is unfortunately dying from the top, and may have lost something. Its height has been calculated, trigonometrically, at 104 feet.

In Herriard Park, near Basingstoke, there are some pines, said to be the tallest in England; they are not, I think, of the same kind as the Norfolk tree; they are plainly visible from the railway near Basingstoke Station. I never heard what their height is.

In a garden at Thrumpton, Notts, there are some larch trees, reported to be the oldest in England; they are more massive than lofty.

The tallest beeches that I know of are in Hackwood Park, also near Basingstoke.

Otham, Maidstone. F. M. MILLARD.

The Fructification of the Aucuba.—Soon after the introduction into this country of the male plants of the Aucuba, I got some plants and planted them in my garden near a large female plant of that shrub, and I closely watched year by year the way in which the female plant got fructified and bore berries, so that I can vouch most positively for the correctness of my observations.

As I have never seen any statement of the fact in print, I thought perhaps it would not be out of place in your Natural History Magazine.

There is only one insect that fructifies this shrub, and that insect is the common blue bottle or flesh fly. I have never seen any other insect come near it.

The first sunny day in April after the plants have come into blossom, I have been certain to see a considerable number of blue bottle flies approach them, though I have never before caught sight of a single fly of the sort since the previous summer. The flies invariably go first to the male blossoms, and there they make a meal of the pollen, drawing it in through their proboscis. When they have eaten to satiety, they then as invariably go afterwards each of them to a female flower, and they evidently quench their thirst by applying their proboscis to the viscid substance on the stigma of the pistil, remaining some time on it. This is the only way in which the Aucuba is fructified.

As I have seen no pollen adhering to the flies, my idea is that when they draw the viscid substance on the stigma up one of the tubes of their proboscis, they at the same time eject some of the pollen on which they have surfeited, down another of the tubes of the proboscis, and so into the tube of the pistil, from which it is conveyed to the ovules and fructifies them. I do not know whether or not this theory is the correct one.

24, *Parkhill Road, Hampstead.* PETER HASTIE.
May 16, 1902.

SELBORNE SOCIETY NOTICES.

Council Meeting.—The usual monthly meeting of the Council will be held at 20, Hanover Square, W., on Tuesday, June 17, at 5.30 p.m.

New Members.—G. Soundy Unwin, Esq., Surbiton; J. Ray Eddy, Esq., Skipton; Wm. E. Clarke, Esq., Rotherhithe; A. Riley Gillman, Esq., Hampstead; Alfred Bolus, Esq., and Mrs. Bolus, East Dulwich; Mrs. Franklin, Porchester Terrace; London Clarion Field Club; W. H. Morris, Esq., Croydon; J. Watson, Esq., Ealing; Francis H. Baker, Esq., Hampstead; Peter Hastie, Esq., Hampstead.

Donations and Subscriptions.—The Council beg to acknowledge the following: Subscriptions over 5s.—Wm. E. Clarke, Esq., 7s. 6d.; F. Crossley, Esq., 21s.; Mrs. Arthur Hill, 21s.; Mrs. Chas. Mathews, 10s. 6d.

FIELD CLUB RAMBLES.

May 3.—The ramble was under the able and energetic direction of Mr. J. E. Whiting, and the route chosen was from Northwood to Batchworth Heath and back by different roads. Both Selbornians and members of the Hampstead Scientific Society, to the number of about fifteen, took part in the ramble, which would have been better attended but for the wetness of the afternoon. The lateness of the season was evidenced by the blackthorn still in full bloom.

Among the wildings noticed were *Pedicularis sylvatica*, *Cardamine flexuosa* in abundance, *C. pratensis* just showing, and *Viola Riviniana* in large quantity; in Bishop's Wood *Euphorbia amygdaloides* was well established, while on Batchworth Heath *Vinca minor* in flower covered one of the banks, being indigenous in this locality. In a meadow *Genista tinctoria*, a rare plant in Middlesex, was also noted. Over twenty birds' nests were viewed, conspicuous among them that of the long-tailed tit, a miracle of beauty and cleverness of construction. The songsters themselves were much in evidence; half-a-dozen nightingales, and birds and thrushes almost unlimited swelled the avian chorus, to say nothing of smaller voices.

FORTHCOMING RAMBLES.

June 7.—Ramble to Burnham Beeches. Guide, Mr. Hunt. Meet Mr. Hunt in the booking office at Paddington at 2.15 p.m.; obtain tickets only *of him*. Cheap return 2s. 2d. Train at 2.35 to Burnham Beeches station, thence walk to the Beeches, 2½ miles; tea at Grenville Lodge. Returning from Burnham Beeches station in the evening at 6.18, 7.31, or 8.40.

June 14.—Ramble in the neighbourhood of Northwood with the Hampstead Scientific Society. Train leaves Baker Street 2.27; return ticket 1s. 6d. The party will be conducted by Mr. J. E. Whiting. Tea at Ye Old Greene Manne, at Batchworth Heath, at 5.

June 21.—Ramble round Clandon and Newlands Corner. Train leaves Waterloo at 2.22, Clapham Junction 2.32. Take cheap return tickets to Clandon, 2s. 3d. Guide, Mr. A. B. Wilkinson.

June 28.—Stanmore. Meet at Pinner station (L. & N. W. R.), on arrival of 2.40 train from Euston, calling at Willesden Junction 2.58. A train also leaves Broad Street at 2.20. Walk to Stanmore by fields and common, where tea will be provided. Mrs. Brightwen has kindly given permission for a visit to the Grove gardens after tea, for Members only. All wishing to attend this ramble must send a postcard to that effect before June 19 to Mrs. Percy Myles, 7, Lincoln Street, S.W. Guide, Mr. Odell. The walk will be about 4 miles.

July 5.—Particulars will be given in July magazine.

ANSWERS TO CORRESPONDENTS.

Miss Brinkley.—The white flower is the Stitchwort, *Stellaria Holostea*, the blue one, the Alkanet, *Anchusa sempervirens*.

C. H. Whitby.—We frequently have entomological papers in NATURE NOTES. Try and get the shilling volumes of Sonnenschein's "Young Collector" series.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., Richmond, S.W.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

No. 151. JULY, 1902. Vol. XIII.

OBJECTS OF THE SOCIETY.

To preserve from unnecessary destruction such wild birds, animals, and plants as are harmless, beautiful, or rare. To discourage the wearing and use for ornament, of birds and plumage; except when the birds are killed for food or reared for their plumage. To protect places and objects of antiquarian interest or natural beauty from ill-treatment or destruction. To promote the study of natural history.

ANNUAL MEETING AND CONVERSAZIONE.

THE Society's Annual Meeting and Conversazione was held on Thursday evening, May 29, at 20, Hanover Square, Lord Avebury (President of the Society), presiding. There was a good attendance, amongst those present being Sir John T. Goldney, Prof. Edward Hulme, Prof. Boulger, Mr. Fred. Enock and many others.

Expressions of regret at being unable to be present were announced as having been received from Lord Stamford and Sir George Kekewich.

In moving the adoption of the Report and statement of accounts for the year, Lord Avebury, who was cordially received, said: I believe you have all received a copy of the Annual Report and balance sheet, and therefore I shall be acting in accordance with your wishes in taking it as read and proceeding to make a few remarks. I might perhaps ask your attention for a few minutes to refer to the position of the Society itself, and to the details of what has occurred during the year; but I have

done that on several former occasions, and I have thought that perhaps to-night I might most usefully occupy your attention by endeavouring to say something that might possibly lead to the stopping of the destruction of flowers in the neighbourhood of London which, if not checked, will lead ere long to the disappearance of many of our charming and most beautiful wild flowers. Of course in our Society animals are more generally interesting, but you will agree with me that the vegetable kingdom is an important part of the domain presided over by the Selborne Society, and it has been suggested to me whether it was not possible for Parliament to do something to provide for the protection of wild flowers as it has done to protect birds. I have never been able to see any way by which anything important could be done by law to protect the wild flowers which add beauty to our woods and fields, though I am far from saying nothing could be done, and indeed I would be glad to receive any practical suggestion, and I would do all I could to carry it into effect. But more could be done to create better taste and better feeling for the beautiful flowers which add so much to the attractiveness of the country. One way of doing that is by cultivating interest in that most attractive field of study.

Many people seem to consider that while plants no doubt add greatly to the beauty and attractiveness of a country, they are, in themselves, of little interest. I am often told that botany is a dry science. No science, however, can be dry—certainly not botany. Some botanical books, no doubt, may be. Technical terms, descriptions of structure, discussions on nomenclature are important and necessary, but they are interesting only to specialists and may well be left to them. But the habits of plants, their mode of life, their adaptation to their surroundings must surely be interesting to any intelligent person who looks at them. Why, for instance, are some flowers green, others white, yellow, red or blue? Why are some open, some tubular, and others closed? Why do some open in the day and others by night? Why do some flowers sleep? What regulates the endless variety in the forms of leaves, fruits and seeds?

It is astonishing how little many people, even among those who live in the country, know about our commonest trees and shrubs. Many do not seem to know that all trees have flowers. This is no doubt because in so many of them—oaks, elms, beech, ash, and others—they are small and green. Indeed, speaking generally, we may say that when the pollen is carried from one flower to another by the wind the flowers are small and green. In such cases, however, an immense quantity of pollen is wasted. Everyone must have noticed the great clouds of pollen produced by Scotch firs. On the contrary, when it is carried by insects much economy is effected. In such cases it is an advantage that flowers should be of a different colour from the leaves, because it renders them more conspicuous to the insects. The

scent acts in the same way, and the honey gives the insects a definite inducement for their visits.

I think it is obvious that any blossom which differs from the form and size best adopted to secure the due transference of the pollen would be less likely to be fertilised than others; while on the other hand, those richest in honey, sweetest and most conspicuous, would most surely attract the attention and secure the visits of insects; and thus, just as our gardeners, by selecting seed from the most beautiful varieties, have done so much to adorn our gardens, so have insects, by fertilising the largest and most brilliant flowers, contributed unconsciously, but not less effectually, to the beauty of our woods and fields.

Let us take some familiar flower and see if we can suggest explanations for the colour, form, and structure.

The flower of the common white deadnettle consists of a narrow tube, somewhat expanded at the upper end, where the lower lobe of the corolla forms a platform, on each side of which is a small projecting tooth. The upper portion of the corolla is an arched hood, under which lie four anthers in pairs, while between them, and projecting somewhat downwards, is the pointed pistil. At the lower part, the tube contains honey, and above the honey is a row of hairs almost closing the tube.

Now, why has the flower this peculiar form? What regulates the length of the tube? What is the use of the arch? What lessons do these lobes teach us? What advantage is the honey to the flower? Of what use is the fringe of hairs? Why does the stigma project beyond the anthers? and why is the corolla white while the rest of the plant is green? Some of these points are so familiar that it seems absurd to ask the questions.

The answers, I believe, are as follows. In the first place, the honey attracts insects. If there were no honey, they would have no object in visiting the flower. The bright colour is useful in rendering the flowers conspicuous. The platform serves as an alighting stage for insects. The length of the tube has reference to that of their proboscis, and prevents the smaller species from obtaining access to the honey without fertilising it. The upper arch of the flower protects the stamens and pistil, and also presses them firmly against the back of the bee; so that, when she alights on the stage and pushes her proboscis down to the honey, her back comes into contact with the pollen. The row of small hairs at the bottom of the tube prevents small insects from creeping down the tube and stealing the honey. Lastly, the small processes on each side of the lower lip are the rudimentary representatives of two petals, formerly more largely developed, but which, having become useless, have almost disappeared. Hence we see that every particular and detail in the flower has its own purpose and function.

In some cases plants act almost as if they possessed intelligence. We all know how difficult it is to catch a fly. But the sundew lives on them. Various other plants feed on insects,

capturing them by a series of most ingenious and diversified devices. The grass-of-Parnassus deceives flies by mock drops of honey, but more mercifully makes no attempt to injure them when they have served its purpose.

Then again, some plants mimic others. The white dead-nettle to which I have already referred is a familiar instance. It frequents waste ground and road sides, and seems to love the stinging nettle. The plants belong to quite different families, but the leaves and general habit are so similar, that from a little distance it is almost impossible to distinguish them unless the deadnettle is in flower. I can hardly doubt that the deadnettle is often spared from its similarity to the stinging nettle.

Again, it is known that many flowers sleep. Why should they do so? In animals we can understand it; they are tired and require rest. But why should flowers sleep? Why should some flowers do so, and not others? Moreover, different flowers keep different hours. The daisy opens at sunrise and closes at sunset, whence its name the "day's eye." The dandelion is said to open about seven, and I looked at some yesterday and found them asleep at a quarter to six; *Arenaria rubra* to be open from nine to three; the white water-lily from about seven to four; the common mouse-ear hawkweed (*Hieracium Pilosella*) from eight to three; the scarlet pimpernel (*Anagallis arvensis*) to waken at seven and close soon after two; *Tragopogon pratensis* to open at four in the morning and close just before twelve, whence its English name, "John go to bed at noon." Farmers' boys in some parts are said to regulate their dinner-time by it. Other flowers, on the contrary, open in the evening.

Now, it is obvious that flowers which are fertilised by night-flying insects would derive no advantage from being open by day; and on the other hand, that those which are fertilised by bees would gain nothing by being open at night. Nay it would be a distinct disadvantage, because it would render them liable, firstly, to be robbed of their honey and pollen by insects which are not capable of fertilising them, and secondly, to have the pollen injured, and the honey washed away by rain. I have suggested then, and it is now I think generally admitted, that the closing of flowers may have reference to the habits of insects; it may also be observed in support of this that wind-fertilised flowers do not smell and do not sleep; that some of those flowers which attract insects by smell, emit their scent at particular hours; and that night-opening flowers are as a rule white or light yellow. Thus, *Hesperis matronalis* and *Lychnis vespertina* smell in the evening, and *Orchis bifolia* is particularly sweet at night. The evening *Lychnis* is white, and the nearly allied day *Lychnis* is red.

Let us take the history of one very common flower, the common dandelion. When it is in bud the flower-stalk is short and lies on the ground. When the flower is ready to open, the stalk raises itself perpendicularly. What we call a dandelion

flower is really a bunch of flowers, some hundred florets ranged on a flat disc. The outer rows of florets open first, then the inner and inner rows, ending with the centre ones. This lasts some days, and every evening about sunset the flower head closes up so as to protect the delicate florets from night dews, and probably from night insects. I found, however, that I could keep a dandelion awake all night by exposing it to the blaze of an Argand lamp, which prevented it going to sleep. When all the florets have opened, the yellow corollas shrivel up, the stalk lays itself down on the ground so as to be out of danger, and the seeds gradually mature. When they are ripe the flower-stalk by some mysterious instinct becomes aware of the fact, and raises itself so as to stand up boldly in the wind, which seizes the seeds by their beautiful parachutes, carries them off to fresh fields and pastures new, and thus enables the plant to sow itself in any recently turned up ground, or in any other suitable locality.

Fruit and seeds are scarcely less interesting, and often hardly less beautiful than flowers. They present many most interesting contrivances and adaptations. I will only deal with the means by which they are dispersed. Some, like the dandelion, willow-herb, cotton, cotton-grass, &c., are provided with hairs—often feathered—by which the wind wafts them away. Others are provided with wings for the same purpose. Some, like the cleavers, docks, and agrimony, have burrs which are covered with hooks which catch in the fur of any passing quadruped. Some are good to eat. Many of them sacrifice themselves for the good of the rest. Take the hazel-nuts for instance. Thousands of them are eaten by squirrels, but many are dropped, or lost, and thus carried to a distance and enabled to sow themselves. In many cases, as in apples, cherries, peaches, grapes, currants, &c., there is a sweet and juicy flesh which is carried about and eaten, while the actual seeds are protected by a more or less thick crust, and are thrown away. In these cases it is interesting to observe that very often the unripe fruits are green and unattractive, while, when mature, they assume brilliant colours, which seem an invitation to the feast!

In some instances plants actually throw their seeds; this is the case with many common herbs, with some violets, peas, geraniums, and many others. The distance to which they can be thrown is often very remarkable. I tried to ascertain this in the case of our common herb-robert. In the open air this cannot be done, for it is impossible to find the seed when once thrown. I therefore brought some into the house and put them in a glass on a table. Still I could not find them. At last, by spreading out a large sheet, I was able to do so, and found they were thrown more than twenty feet.

Other plants sow their own seeds, for which most ingenious contrivances are provided. Some of our violets do so. I have already mentioned the dog violet as one of the plants which

throws its seeds. Other violets bury them. What is the reason for this difference of habit? I have elsewhere suggested that it depends on the mode of growth. The dog violet has a stalk, and the flowers are thus more or less raised above the ground. In the species which bury their seeds there is practically no stem, the flower rises directly from the ground. Under these circumstances if the plant attempted to shoot its seeds, they would merely strike against some neighbouring leaf, and immediately fall to the ground. Hence, I think, we see that the arrangement of the capsule in each species is that most suitable to the general habit of the plant.

In many plants with seed capsules—such as poppies and bell flowers—the capsules when ripe open at the top. The first high wind swings the cup from side to side and thus scatters the seeds. There are a great many campanulas, and there is a curious difference in the capsules; some open at the free end, some at the base. Why is this? I have suggested that it depends on the position assumed by the capsules. In some species they stand upright and in these they open at the summit: in others the capsules hang down and these open at the base. Thus in both cases they open at the higher end: if they opened below, the seeds would simply drop to the ground, but as it is they lie in the cup till some high wind gives it a good shake and throws them to a distance.

Perhaps you will say that these are mere fancies—purely accidental coincidences. Let us then look at our trees and shrubs as a group. Winged seeds are only useful when they start from a certain height. They occur in many trees—ash, lime, maple, sycamore, pine, fir, beech, and hornbeam—but not on low plants. Hooked seeds, on the contrary, would be useless on high trees or even on shrubs above the height of a horse or cow. They occur on docks, burrs, and many other herbs, but are not found on a single tree or even on any shrub. Edible seeds especially characterise low trees and shrubs loved by birds—such as the cherry, holly, ivy, yew, nut, &c. These, probably every one will agree, cannot be mere coincidences.

One of the most remarkable seeds is that of a rare English grass, the *Stipa pennata*. The actual seed is small, with a sharp point, and stiff, short hairs pointing backwards. The upper end of the seed is produced into a fine twisted cork-screw-like rod, which is followed by a plain cylindrical portion, attached at an angle to the corkscrew, and ending in a long and beautiful feather, the whole being more than a foot in length. The long feather, no doubt, facilitates the dispersion of the seeds by wind: eventually, however, they sink to the ground, which they tend to reach, the seed being the heaviest portion, point downwards. So the seed remains as long as the weather is dry, but if a shower comes on, or when the dew falls, the spiral unwinds, and if, as is most probable, the surrounding herbage or any other obstacle prevents the feathers from rising, the seed itself is

forced down and so driven by degrees into the ground, or if the wind rises it catches the feather and twists the seed into the ground like a corkscrew.

I have not space to discuss the roots or stem, but should like to say a few words about leaves. We all know the endless variety they present, and we may be sure that there is some cause and explanation for every one of these differences. There are many interesting problems in this field. Let me just give you one or two illustrations. Take for instance the beech. The sails of a ship must be proportionate to the strength of the masts that carry them. So also the strength of the branches determines the leaf area. In our trees the leaves are arranged so as to get as much light and heat as possible. In hot dry countries they are often arranged so as to cover and protect one another, in some of the New Zealand Veronicas for instance. With us it is the reverse. Hence the width of the beech leaf is determined by the distance between the buds—if they were narrower space would be wasted; if they were wider they would overlap. The size and width being thus arrived at the length is also determined—if they were shorter they would be too small, if they were longer they would overweight the branches.

Now let us take a tree with very different leaves—the Spanish chestnut. They are long, narrow, and sword-shaped. Why is this? The terminal branches of the Spanish chestnut are much thicker and stronger than those of the beech. Consequently they can carry more sail. But the distance between the buds is but little greater, consequently the leaves cannot with advantage be much wider; but as they must be larger they must be long and narrow. Take again the firs and pines. Some have long leaves, in others the leaves are short. Why is this? They are, as everyone knows, evergreen, but the length of life of the leaves differs greatly. Some keep them on for little more than a year, others two or three years, others eight or ten, the Pinsapo nearly twenty. And you will find that other things being the same, the longer the life the shorter the leaf—thus securing about the same leaf surface. To look at plants from this point of view makes country life, it seems to me, far more interesting.

Another point in which our conception of plant life has undergone considerable modification of late years is as to their power of movement. Those who had not studied the question used to consider that animals moved, but plants were stationary. That is a great mistake. We now know that many of the lower plants, especially in young stages, swim about by means of fine hairs known as cilia. In fact plants move much more than is supposed. I have given instances in which they actually throw their seeds to considerable distances. Indeed so far from being motionless, it would be more correct to say that they are in almost perpetual motion, though the changes of position are so slow that they do not attract attention.

I have mentioned a few cases in which the reasons for the forms and shapes, and colours and habits, may be explained with more or less probability, but the unsolved problems of plant life are almost infinite. To make a collection is no doubt interesting, but it is like making a library. What is the use of the books if you do not read them? What is the value of a collection if you do not use it? Aristotle said the greatest happiness of gods or man was to be found in the study of nature; and I think that one of the wisest of the many wise sayings which we owe to this distinguished man.

The problems of plant life are all but infinite. Great indeed as is the pleasure which flowers give to the eye, it is less than the delight which they afford the mind. They offer an endless series of most interesting mechanical, optical, chemical, and other problems. It is not going too far to say that there is not a single plant—not even the commonest—of which the whole life history, properties and structures are fully known to us—not one which would not well repay, I do not say the attention of an hour, but even the devotion of a lifetime.

Sir John T. Goldney, in seconding the motion, said he was rather sorry he had been called upon, because he was taking the place of a man who could speak much better than he could (Sir George Kekewich). He had lived, he said, for nearly a quarter of a century in tropical countries, and no one who had lived under such conditions could help taking a deep interest in plants and animal life. Though he had an uncle who was a distinguished botanist, he had learnt nothing of botany before going to the tropics, but with the object of interesting some young Englishmen and Scotsmen in the study, he was instrumental in starting a field naturalist club, and what he knew of natural history or botany was due to going and hearing those young men giving accounts and producing specimens of what they had seen while on their rambles. He desired to impress upon the Society the necessity of teaching young men what good a society like that could do. It was impossible to be a botanist without being a naturalist, the two things were so closely allied; in considering one they must consider the other. Not only were the study of botany and natural history instructive, but they taught people to observe. Then, when the power of observation had been acquired, the student was not satisfied with merely seeing the structure of a plant, he wanted to know its uses and how it could be converted to the uses of mankind. Nothing, in his opinion, was more interesting than to go out into the fields and have flowers and plants explained. In due course the student would explain the mysteries to other people. He referred to several peculiar plants, including the sensitive plant, which had always appeared most remarkable to him. His idea always had been that it had the power of withering up when touched, so that a horse or a cow, if desirous of eating it, would pass it by as being a dead plant. As to wild flowers, he might be taking a selfish

view of the subject, but he thought most landlords would be desirous of assisting the Society to prevent children and others picking wild flowers. They did a great deal of mischief, as most of the wild flowers appeared when the birds laid their eggs. The result was that, while searching for wild flowers, birds' nests were likely to be found, and then the eggs were taken. Pheasants also were driven off their nests, and that was most annoying. Every one who had a few pheasants would sympathise with the Society if it took the step indicated. It might possibly be wrong to have a few pheasants, but he was certain that those who had would support the Society if it endeavoured to prevent the picking of wild flowers. In the colonies long excursions were made on Bank Holidays, which days were, he believed, rather in the Chairman's way, and they were greatly appreciated as being the best time upon which to go upon long excursions. Prizes were given for the best essay on what had been seen, and he commended the idea to the Selborne Society. Also he suggested that Lord Avebury would probably undertake to read the essays and decide which was the best.

Lord Avebury remarked that he would rather give the prize and get Sir John Goldney to judge the essays.

The report was unanimously adopted.

Mr. Chas. West moved the election of officers for the ensuing year.

In seconding the motion Mr. E. A. Martin referred to the recent change of secretary that had taken place, and remarked how much all were indebted to the new Secretary for the work he had performed for the Society. He thought he should refer to that subject at that meeting, notwithstanding the fact that the Secretary was appointed by the Council. Proceeding to refer to the subject of the protection of plants, in which they were all much interested, he expressed the opinion that it was a branch they must take up in the future, and announced that Professor Boulger was going to read a paper on the subject at Canterbury this summer. He proceeded to direct attention to the Gilbert White exhibits which were on view within the building, and explained them at some length, particularly referring to a Bible in which were recorded the births and deaths of members of Gilbert White's family.

Passing on to the subject of lopping trees in order to put up Coronation stands, he said that around Westminster Abbey some of the young trees had been lopped almost out of recognition, and they now appeared to resemble articles sometimes seen in gardens and known as clothes-props. The only use they could be put to, so far as he could see, was for the users of the stands to hang up their superfluous clothes upon them. As to the Piccadilly widening, he hoped it would do what was intended of it, and he noted with satisfaction that small trees had been planted to replace those that had been removed.

The motion was agreed to and the following officers were re-elected :—

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Trustees.

THE RIGHT HON. LORD AVEBURY, D.C.L., F.R.S., &c.
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The Right Hon. The Earl of Stamford.
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Lord Avebury having returned thanks for his re-election,

Professor Boulger then said that now the election of officers was over he would venture to tell them a secret, namely, that a year ago his lordship had said something to him about resigning. He (Professor Boulger) naturally pooh-poohed the suggestion at once, as they did not intend to part with Lord Avebury, who had that evening shown there was no reason whatever for making that suggestion. There were some people who were too old to learn. A book had been published within the last few weeks, in which his lordship and many other naturalists were attacked by an anonymous, though apparently by no means youthful writer. The book might have received serious attention had it appeared at an earlier period. When they were told that structures such as Lord Avebury had described were merely interesting variations, and that it was triviality to suggest that structure implied use, they must conclude that such a person as the writer of the book had been asleep for the last twenty years. Lord Avebury had certainly not been asleep for twenty years. He proceeded to testify to the varied work done by Lord Avebury, through whom it was that the abolition of the use of ospreys in the army was brought about. As to the numerous ways in which Lord Avebury had promoted the growth of natural history, he cited the fact that only a few months ago he had pleased them with a volume on scenery, and now he had given them a purely botanical discourse of the very greatest

interest. He had done everything that could be expected from a President to carry out the objects of the Society, and he (Professor Boulger) could only wish that other members would do as much. Indeed he did not know what the results of the Society would be if everyone did do as much. He thought, however, they could congratulate themselves on the past year's work. They still had a great deal to do, but they had done the best. As to the trees in Piccadilly, he was glad to say that in place of the sixteen cut down sixty-four had been planted. The coronation "clothes props" were only to be expected; the ordinary English workman was not to be trusted with a cutting instrument within one hundred yards of a tree. He would of course reason—there is the cutting instrument, and there is the tree; one must be for the other. On the subject of the preservation of wild flowers, Professor Boulger said he did not know that he could go so far as Sir J. Goldney as to wish that children could not pick wild flowers. There was a difference between that and dealers sending up sacks of ferns to Covent Garden. He was sorry children interfered with Sir J. Goldney's pheasants, however. A great many questions, he said, were constantly coming before them with regard to open spaces, and no sooner had they secured one than they received suggestions as to others. He cited several instances in which they had been successful, notably Derwentwater and Burnham Beeches, and he promised that the officers would be as active in the course of the ensuing year as in the past. He asked for a hearty vote of thanks to be accorded Lord Avebury for his presence in the chair.

In seconding the vote, Professor Hulme said he had wandered with the Chairman in North Wilts, and he referred to his versatility and the ground he covered in all sorts of directions. When a stream was diffuse it was often shallow; but from Lord Avebury thay got not only quantity but most excellent quality. If they read their Lubbock they would find they were getting a great deal of information very nicely put. No matter how diverse were their occupations and interests, they met as one in that room in their appreciation and their love of natural history. That made them at once one great brotherhood, one great Society; and the brotherhood was a real brotherhood. When any point arose they had only to refer to another brother to at once get a reply. He referred to Lord Avebury having kept a dandelion awake all night with an Argand lamp, and said he believed Lord Avebury had a dog which he was teaching German or dog Latin. He did not sympathise with the crusade against children picking flowers. There was a happy medium in all things; they could not be morbidly sensitive. If children could not pick flowers their interest would be nipped in the bud. He hoped the Selborne Society would not go on that track. He hoped flowers would be picked, and more or less wisely picked.

During the Conversazione that followed, Mr. Enock gave a most interesting lantern lecture on "Insect Marvels of a Town Garden," and Dr. Bowdler Sharpe, F.R.S., communicated the following note on a portrait of Gilbert White:—

A Portrait of Gilbert White.

It has generally been supposed that no likeness of Gilbert White exists. Professor Bell expressly says that he never would sit for his portrait (ed. Selborne i., p. 58). At the same time he gives an account of Gilbert White's personality:—"Gilbert White's personal appearance has been described to me by his nephew, the late Rev. Francis White, who remembered him well. He was only five feet three inches in stature, of a spare form and remarkably upright carriage. . . . .

"The supposition of some persons that the clergyman represented in the large frontispiece to the first edition of his work was intended for him is therefore erroneous. It may be interesting to those who possess either of the 4to editions of the work, to be informed who were the persons represented in the frontispiece. The first is the Rev. Robert Yalden, the vicar of Newton Valence; second, Mr. Etty, the brother of the vicar of Selborne; third, Mrs. Yalden; and the fourth, Thomas Holt White, Gilbert's brother."

On the other hand, we read in the summary of the Earl of Stamford's address on "Gilbert White's Ancestors" (see Nature Notes, iv., p. 104), that Dr. J. T. White, whose father was Gilbert's nephew, stated, on the authority of the latter, that "the figure coming up the hill" in the frontispiece to the 4to edition of Selborne was intended for Gilbert, and, though not exactly a portrait, was in general outline very like him. "We have, then," adds Lord Stamford, "an approximate likeness of Gilbert."

I am not aware that this pronouncement of the Earl of Stamford has ever been seriously challenged. Professor Bell does not mention his authority for the description of the figures in the frontispiece of the original edition, but we may presume that it was the same Rev. Francis White, Gilbert's nephew.

Mr. Holt-White, in his "Life and Letters" seems to have acquiesced in the identifications given by Professor Bell. He accepts the statement that the Mrs. Yalden depicted by Grimm in November, 1776, was the lady who afterwards became the second wife of Benjamin White (then 61 years of age) in August, 1786. She was the widow of the Rev. Richard Yalden (not "Robert" as Bell has it), the vicar of Newton Valence, who died in 1785; and the next year she married Benjamin White.

Grimm went to Selborne to draw the pictures for Gilbert White's book in July, 1776 (*cf.* Holt-White's "Life and Letters," i., p. 324). He drew twelve pictures, as Gilbert tells his brother John in a letter from Meonstoke on August 9, 1776. On the

19th of the same month he writes to his nephew, Samuel Barker, and mentions Grimm's twelve drawings, remarking that the "scape" of Hawkeley Hanger "did not succeed so well as some others" (*l.c.*, p. 328). Writing to the same nephew on November 1, 1776, he again refers to the twelve drawings by Grimm, and gives a list of them.

(1) "A view of the village and hanger from the short Lithe." [Afterwards reproduced as the folding frontispiece to the first edition of "Selborne."]

(2) "A view of the S.E. end of the hanger and its cottages, taken from the upper end of the street." [Not published.]

"A side view of the *old* hermitage, with the Hermit standing at the door." [Vignette on the title-page of the first edition of Gilbert White's book.]

(4) "A sweet view of the short Lithe and Dorton from the lane beyond Peasecod's house." [Not published.]

(5 and 6) "Two views of the Church." [Published in the first edition (see pp. 310, 322).]

(7 and 8) "Two views of my outlet." [Not published. Would that they had been!]

(9) "View of Temple Farm." [See p. 342 of the first edition.]

(10) "View of the village from the inside of the present hermitage" [*i.e.*, the Alcove on the Bostal. Not published].

(11) "Hawkley Hanger,"—"which does not prove very engaging." [*Vide antea.* Not published.]

(12) "A grotesque and romantic drawing of the waterfall in the hollow bed of the stream in Silkwood's Vale to the N.E. of Berriman's house." [Not published.]

Referring to the folded frontispiece, I would suggest that Professor Bell's identification of the persons depicted by Grimm must, at least in one instance, be erroneous. In the records published by Mr. Rashleigh Holt-White, there is no mention of any visitors at the "Wakes" during the period of Grimm's stay at Selborne, and certainly his brother Thomas does not appear to have been there, so that Bell's "fourth" figure identified as "Thomas Holt White, Gilbert's brother" can scarcely be correct. At that date (1776) Thomas was fifty-two years old, and was probably at that time by no means of slender figure, to judge by the portrait given in Mr. Holt-White's book (vol. i., p. 298), though this likeness may have been taken some years later. There is no record of Thomas Holt White the younger, then aged thirteen years, having been at Selborne in 1776, and the "fourth" figure cannot have been intended for him. The "second" and "third" figures may represent Mr. Etty and Mrs. Richard Yalden, as Bell says—there seems to be no evidence for or against this statement.

The interest centres now on the "first" figure—as to whether this represents Gilbert White, as a family tradition,

according to the Earl of Stamford, records that it does; or whether Professor Bell is right in identifying it as that of the Rev. Richard Yalden. If the identification of Thomas Holt White, Gilbert's brother, is wrong, of which I have little doubt, then the whole conception of the portraits depicted in the picture may be wrong also.

The figure of the clergyman in the "frontispiece" must, however, be taken in connection with another picture in the original edition. Facing p. 345, is a plate of the "Pleystow, vulg. the Plestor." This picture is not enumerated by Gilbert White as having been one of the twelve drawn by Grimm in 1776.

It was probably drawn at a later date, but in Mr. Holt-White's "Life and Letters" there is no record of Grimm having visited Selborne at a later period than 1776. Seated on the bench is the figure of a man, apparently a clergyman, with a dog—a long-eared Spaniel. If, as is probable, this plate of the "Plestor" was drawn at a subsequent period to the others, some of which took some years to engrave—for we find that in February, 1788, the "great N.E. view of Selborne" was not yet finished (Holt-White, "Life," ii., pp. 180, 181)—it may have been completed shortly before the publication of the book. In this case, the picture is one of great interest. The preface to the first edition bears the date of January 18, 1788, and the book was published in 1789, but copies must have been ready for distribution at the end of 1788, since Harry White received his copy at Fyfield on December 3 in that year.

Writing in 1792, ten months before his death, to Robert Marsham, he says: "Though I have long ceased to be a sportsman, yet I still love a dog; and am attended daily by a beautiful Spaniel with long ears, and a spotted nose and legs, who amuses me in my walk by sometimes springing a pheasant, or partridge, and seldom by flushing a woodcock, of late become with us a very rare bird."

The figure seated under the tree in the Plestor in Grimm's picture evidently "still loves a dog," and I submit that this figure is intended to give us an idea of Grimm's friend and patron. In introducing the figures into his "scapes," it is but natural that Grimm would endeavour to recall the appearance of Gilbert White in a picture of Selborne, and I contend that even if it be not an actual portrait, the delineation of the old Clergyman and his dog in the picture of the "Plestor" is intended for Gilbert White, and is perhaps the only real clue to our conception of what he may have been like in personal appearance.

The pictures in my own edition of "Selborne," purporting to represent Gilbert White, are singularly unhappy, and have incurred the just censure of Professor Newton in *Macmillan's Magazine* for 1900. My old friend, though knowing nothing of the real facts of the case, does me the justice to credit the

publisher with the responsibility of the production of these pictures. I may now tell Selbornians that, although I had furnished to the artist all the details which were known respecting Gilbert White's personal appearance, and had asked that his sketches should be submitted to me, the whole of the pictures were finished during my absence abroad, and promptly photogravured, so that I had no voice in the matter of their publication. As specimens of the "black-and-white" drawing for which Mr. Sullivan is famous these pictures have been greatly admired, but that they in no way represent Gilbert White can be seen at once by a comparison of the dress of the Georgian clergymen depicted in the original edition of "Selborne."

Among the articles exhibited were various editions of Gilbert White's book and the White family Bible.

SELBORNIANA.

MARBLE HILL.—The London County Council have resolved to exercise their option of purchase with regard to this important part of the Richmond Hill view.

A NEW EPPING FOREST.—We have received the following from Mr. W. Cole, F.Z.S., the Hon. Secretary of the Essex Club:—

It will be most welcome news to our members and all taking an interest in the vitally important work of securing open spaces near London, to hear that Mr. E. N. Buxton has been occupied for some months with a scheme for the re-afforestation of a large part of Old Hainault Forest, so unhappily destroyed in the "dark ages," *circa* 1850. One portion is that now called Fox Burrows Farm, of 475 acres, lying about the highest range of the ridge separating the Roding and the Thames Valleys. The scheme also embraces Lambourne Forest (188 acres), Chigwell Manor and Common (68 acres), and an intervening tract of arable land of 52 acres; the whole being roughly a square of nearly 800 acres! It is also proposed to acquire Grange Hill Forest, of 70 acres, which is detached from the main portion, but which is a charming piece of the old woodlands. Mr. Buxton has had to conduct five separate negotiations to secure the agreements for sale of these lands and manorial claims. The cost will be about £20,000 for the Lambourne and Hainault lands (including cost of "laying down") and £7,000 for the Grange Hill Forest.

The scheme has aroused great enthusiasm and it is anticipated that the localities will largely contribute. Mr. Buxton will ask the great City Corporations and the Essex County Council to bear the main cost, but much is anticipated from private munificence and the several local bodies. We are glad to say that even at the time of writing the financial outlook is very promising.

Should Mr. Buxton's efforts prove successful, the re-afforesting of Hainault will rank as the greatest scheme of "open-spacing" (with the exception of Epping Forest) ever carried out near London; it indeed partakes of the character of a national commemoration of the Coronation year. Much of the land is 300 feet above O.D., and affords commanding and beautiful views. The possibilities from the naturalist's point of view are almost infinite, and the gradual upgrowth of a "reserve" within 12 miles of London will present a fascinating field for study.

A large-scale map, showing the position and extent of the lands, with a copy of Mr. Buxton's statement, have been placed in the Essex Museum at Stratford, and the Forest Museum at Chingford, for public inspection.

We trust that all having any interest in such matters will do their best to make known in powerful quarters the importance of this grand proposal. From a social standpoint the almost appalling fact should be remembered that the parishes within a few miles of the "New Epping Forest" have *increased* within living memory by 600,000 inhabitants! It is emphatically a case of "now or never." Such opportunities and such a man to co-ordinate them, are happy, but very rare, occurrences.

LODGINGS IN THE NEW FOREST.—Two sisters, keen botanists, are making a veritable "home away from home" for all Nature lovers on the breezy ridge not far from Rufus' stone. Bowls of wild flowers delight the eye of every visitor, and at the present moment a pair of wagtails nesting in the peat-stack are a source of joy and interest to all residing there. A clear day shows the visitor the Needles of the Isle of Wight gleaming in the distance. The full address of this peaceful and restful spot is—Miss Fraser, Picket Post, near Ringwood.

NATURAL HISTORY NOTES AND QUERIES.

Hedgehogs.—Mr. Savage, in his interesting note upon hedgehogs, gives first-hand evidence in favour of these much-persecuted little animals. There are many superstitions regarding them which will vanish before careful observation, and it is to be hoped that Mr. Savage will make further notes. I should much like to know whether he has kept watch at all over his hedgehog during the winter months at night, as I do not believe in the "long sleep" theory. It is, I think, pretty certain that, like the bat, the hedgehog leaves his place of hybernation on mild nights through the winter in order to obtain food, and so keep up vitality. My dog caught a very fine male hedgehog which was hunting in the road on a frosty night at the end of last November, and as I wished to ascertain his winter habits I have kept him in captivity, and have him still, in excellent health. Except when the weather has been exceptionally cold he has regularly come out of his nest and fed hastily, and I have never known him go without food for more than two or three days together. As I have kept him in an outhouse open to all climatic alterations, I am more than ever convinced that the total hybernation theory is a mistake. Being night animals they are comparatively little observed, so that it is difficult to get trustworthy information regarding their habits.

Tilford Farm House,
near Farnham, Surrey.
June 13, 1902.

ROBERT MORLEY.

Kitten.—One of my cats last night (June 3) gave birth to a dead kitten with *widely-open* eyes. Is not this somewhat unusual? A few hours later another one made its appearance with eyes closed in the usual manner. This one is still living. The mother is an ordinary mouser.

Tyfield, near Abingdon.

W. H. WARNER.

Swallows Nesting.—The following facts may be interesting to your readers as giving additional proof that swallows make use of the same nest two years running. Last year a pair of swallows built on a projecting ledge of the skylight in the hall here. The skylight is always kept open a trifle, and through this narrow aperture they found their way. They did not seem the least disturbed by people passing by a few feet below them, but continued their building opera-

tions, singing and chattering quite unconcernedly. Even a lamp in the hall in the evenings did not frighten them. When the nest was completed, and the hen sitting, the little cock bird would sit beside her on a cord attached to the skylight. As far as we could judge no young birds were hatched. When the time came for migrating the swallows left.

One day this spring we noticed a solitary swallow flying about, apparently the first to arrive. Judge of our surprise the next morning to see a little hen swallow sitting on the nest in the hall, which had been left there during the winter. A strange bird could scarcely have found its way in and gone direct to the nest. Is not this a proof that swallows continue to use their old nests instead of building new ones? A few days later she was joined by another, and now they are very busy nesting.

Arlington Court, Barnstaple. ROSALIE CHICHESTER.
June 10, 1902.

Our Latest Songsters.—As I have for several years enjoyed peculiar advantages for studying this question, perhaps my experience may be of interest to E. Coxwell. Those of your readers who have replied to the letter which appeared in the April number have overlooked the fact that to record the times for an odd date here and there is not sufficient. Observations and records should cover an extended period, and then, by taking the average, one is enabled to say which is really entitled to the position of "earliest risen." In September, 1901, I gave in a local paper, *The Worksop Guardian*, the results of a series of observations which extended over a number of years, and the order in which I placed the birds is, with a few exceptions, similar to the order in which they are placed by A. C. Mackie in the May number. I note he includes the cock. This I have never done. A cock will crow at any hour if disturbed, therefore the time at which it crowed on any particular date is of no value whatever in helping to decide this question.

I append a series of extracts from my note book and from the article mentioned above, and if they are likely to be of any service to E. Coxwell I shall be pleased if you will use them.

Times at which Certain Birds commence Singing.

1894.
August 24.—Robin, 4 a.m., was first bird heard.
1895.
Feb. 26.—Yellow bunting and blackbird 6.30, hedge-sparrow 6.45, chaffinch 6.55.
,, 27.—Chaffinch 6.45, hedge-sparrow 6.57, blue tit 7, kestrel 7.11. Morning cold, clear.
March 1.—Hedge sparrow 6.55, blue tit 6.55, chaffinch 6.57, great tit 7.5.
,, 2.—Blackbird 6.29, robin 6.33, hedge sparrow 6.30, chaffinch and great tit 7.
,, 18.—Blackbird, robin, hedge sparrow and starling 5.30. Morning frosty, clear.
,, 22.—Robin 5.30, chaffinch 5.45. Wind W., fair, warm.
,, 26.—Hedge sparrow 5.30, yellow bunting 6.45. Cloudy.
,, 27.—Fieldfare 5.45, morning dull.
April 9.—Robin, thrush and blackbird singing till 7.45 p.m.
May 23.—Landrail heard all night. Robin 2.30 a.m., redstart and thrush 2.30 a.m. Wind S.W., clear and warm.
,, 24.—Thrush and skylark 2.40, great tit, blue tit, cuckoo, chaffinch, hedge sparrow, willow wren 3.15. Landrail not heard once during the whole night. Wind S.E., cold, clear.
,, 25.—Landrail 1.25 a.m.
1899.
March 30.—Lark 4.20, thrush 4.30, blackbird 4.40, rook 4.50, robin 4.55, chaffinch 5.15, yellow bunting 5.15, hedge sparrow 5.30. Bright morning, windy.
,, 31.—Lark 4.55, blackbird 5, thrush 5.5, hedge sparrow 5.30. Dull, wet morning.
April 1.—Lark 4.50, blackbird 4.55, thrush 4.55, robin 5, hedge sparrow 5.20. Cloudy, fair, warm.

April 2.—Lark 4.30, thrush 4.55, blackbird 4.35, hedge sparrow 4.39, robin 4.45. Morning clear, warm.
,, 3.—Lark 4.30, thrush 4.33, blackbird 4.40, robin 4.46.
,, 4.—Lark 4.25, thrush 4.40, blackbird 4.45, robin 4.45.

Free Public Library, Worksop. J. T. HOUGHTON.
June 10, 1902.

Cuckoo.—In his interesting article on the cuckoo, in NATURE NOTES for May, Mr. Westell tells us that it has been proved that the cuckoo lays its egg on the ground, and then carries it in its mouth to the nest of the foster parent. It has also been shown* that the cuckoo's egg is in many cases coloured like those beside which it is placed. Are we, then, to suppose that the cuckoo having laid an egg of a certain colour and pattern, seeks for a nest with similar eggs? This seems rather a clever performance for a bird of small brains, as I fancy the cuckoo has been proved to be. Or has the cuckoo already made its choice of a nest, and does the colour of her egg follow (*à la* Mrs. Nickleby, *re* Stratford-on-Avon)? But I blush to make the suggestion in a scientific paper.

The writer of the article referred to quotes with approval Mr. Craig's explanation of the cuckoo's strange breeding habits. They result, he thinks, from the *fact* that the young cuckoo turns out the other occupants of the nest. This *habit* of the young *necessitated* the mother placing her eggs in the nests of other birds; or, in the phraseology of natural selection, those which did so succeeded better in the struggle for existence, and lived down those which did not.

We must *assume*, then, that the ancestral cuckoo built a nest and sat on its eggs like other birds. It is necessary also to *assume* that the young cuckoos in this case struggled together in the nest, and that one was able to turn some, or all, of the others out. Now we know that the cuckoo is able to throw out of the nest the smaller and weaker hedge sparrow or titlark. But according to the descriptions of those who have seen the operation it takes the young cuckoo all its time to do so. It would be a more difficult task to turn out a bird approximately its own size and strength. Thus out of a number of eggs the cuckoo was able to rear only *one* young bird.

Then we must *assume* that in one or more cuckoos some spontaneous variations in brain structure caused them to put their eggs into the nests of other birds. These individuals obtained so great an advantage in the struggle for existence that they gradually lived down those that retained the habit of building their own nests.

Notice the *appalling* amount of assumption required—the usual thing in attempts to explain facts on the principles of natural selection. But, supposing the ancestral cuckoo *did* build its own nest, and that its young *did* struggle together in the nest till one had turned out the others, and that the rest followed in the usual facile way indicated by the theory of natural selection, are we any nearer to a final solution? Is the extraordinary fact of the young struggling together, and some being turned out, any easier of explanation? Such a habit must have been a *disadvantage*, or else those birds which avoided the contingency by laying in the nests of others would have reaped no advantage. We must go back, then, to the time *before* the habit was acquired—when the cuckoo was like other birds, which—

"In their little nests agree."

Then, according to the usual formula of natural selection, certain individuals appeared with the curious instinct of struggling together in the nest. The *strongest* survived, and obtained an *advantage* in the struggle for existence. So the habit was perpetuated and perfected. But we have already been obliged to *assume* that such a habit is a *disadvantage!*

To revert for a moment to the actual habits of the cuckoo *as it is*, one would like to know if a cuckoo which has once laid a *blue* egg and placed it in a hedge-sparrow's nest will always lay *blue* eggs?

G. W. BULMAN.

Last month a little hedge-sparrow built in a cluster rose-bush against the wall, close to our dining-room window. When we found the nest there were only two

* Letter from Sir Wm. Flower, quoted in "Birds from Moidart," p. 105.

hedge-sparrow's eggs in it, and to our delight and surprise we saw a cuckoo's egg lying in the nest also. The bird had evidently been sitting some time, for a few days afterwards, on a Saturday, the one hedge-sparrow's egg hatched out and the cuckoo's also. The other little blue egg was addled. On the following day the cuckoo turned out the poor little rightful owner of the nest. Two days afterwards, sad to say, a cat found the nest and devoured the cuckoo. I have never heard of a cuckoo laying in a nest so near a house that was inhabited.

The Rectory, Llantheny Skirrid, near Abergavenny. PARNELL JONES.

Cuckoo's Egg in Unfinished Nest.—Have any of your readers in their natural history walks abroad ever come across this rather curious find, namely, a cuckoo's egg laid, or rather put, into a nest not nearly finished, without any of the usual soft lining. The nest appeared to be a hedge-sparrow's, but it was so little built that it was almost impossible to tell. Thinking that the owner of the nest would not be able to finish its furnishing with the cuckoo's egg in, I took both the egg and the nest and have it still. I should be very glad to hear if any of your readers have known a similar case.

Essendon, Hatfield, Herts. A. RATHWELL BAMFORD.
June 6, 1902.

SELBORNE SOCIETY NOTICES.

Council Meeting.—The usual monthly meeting of the Council will be held at 20, Hanover Square, W., on Wednesday, July 9, at 5.30 p.m.

New Members.—Dr. S. H. Appleford, Hoddesdon; T. J. Barrett, Esq., Hampstead; Mrs. Hickman, Kensington; H. W. Woodman, Esq., Hampstead; C. M. Hailes, Esq., Hampstead; Wilfred M. Webb, Esq., Hanwell; Alex. Milne, Esq., Hastings; A. S. Godfree, Esq., Hastings; Ll. G. Robinson, Esq., Hastings; Henry O. Minty, Esq., Beckenham; Richard May, Esq., Dulwich; Messrs. Hutchinson and Co.; Mrs. W. E. Price, Chepstow; H. T. George, Esq., Haslemere; Sir John T. Goldney, Corsham; Ed. Cahen, Esq., Kensington; J. C. Purssey, Esq., Mark Lane; Mrs. Hodgson, Carlisle; Miss E. Carter, Barnes.

Donations and Subscriptions.—The Council beg to acknowledge the following subscriptions over 5s.:—Mrs. W. E. Price, 10s.; Sir John T. Goldney, 21s.

FIELD CLUB RAMBLES.

Saturday, May 24, 1902.—The Selbornians met at Chigwell Lane Station about 3 o'clock. Turning into the field, a short distance from the station, a pleasant footpath was taken across the fields in the direction of Abridge. A further stretch of road and field path brought the party out at Theydon Garnon Church, when the Rev. Thos. Lloyd pointed out some noteworthy features, both of the church and the old half-timbered house in the churchyard. Tea was partaken of at the Bull Inn at Theydon village, and the party returned to town from the station close by.

An interesting account of the church was also read by Mr. Austin, under whose guidance the ramble was taken.

June 7.—The ramble to Burnham Beeches is one always anticipated with pleasure, and though members had already this year visited this picturesque spot through the eyes of the Editor of NATURE NOTES, they were naturally anxious to see for themselves what had been in progress there. Once more rain lessened the attendance; yet ten members, in spite of the unfavourable outlook, took part in the excursion. Mr. Matthew Hunt acted as guide. Among the wildings noticed were *Crepis virens* which grew strongly in a badly cultivated field; *Hieracium Pilosella* found on drier soil; and by the side of the road *Vicia lathyroides*, said by Johns (latest edition) not to be common; while a fine henbane growing by the

lawn of Grenville Lodge, where a halt was made for tea, attracted considerable attention. Two or three nightingales at the Beeches were heard in particularly full song, and chaffinches, blackbirds, thrushes, wrens, and whitethroats were making the most of their vocal powers. Owing to the heavy rain the walk through the Beeches was necessarily hurried; still it appeared from such an inspection as the weather permitted to be made, that the huts which lately disfigured the views had been removed, and in the opinion of the Selbornians the tract of ancient woodland, with the trees showing in all the freshness of what should be early summer, remained unspoiled and as beautiful as ever. Coming in for remark, too, was the dash of yellow colour furnished by the azaleas blooming in the wood.

FORTHCOMING RAMBLES.

In consequence of only seventeen names being sent in for the proposed Field Club day at Selborne, the visit has been abandoned.

July 5.—Leith Hill. Train leaves London Bridge (L.B.S.C.R.) at 2 p.m. Take cheap return tickets to Dorking (2s. 3d.), but remain in the train and pay excess on arrival at Holmwood. Walk to Leith Hill (tea); return from Dorking. Cheap tickets are also issued from Victoria by the train leaving at 12.55, calling at Clapham Junction. Guide, Mr. A. B. Wilkinson.

July 12.—West Drayton, Iver and Uxbridge. Meet at West Drayton Station on arrival of train leaving Paddington at 2.35. Walk to Uxbridge, where tea will be taken. Return from Uxbridge 7.5, 7.50, or 8.25. Guide, Mr. Wilfred Marks Webb.

July 19.—Pinner. Train from Baker Street at 2.27. Take train to Pinner, thence walk to Eastcote, then through woods to Ruislip, tea at Cottage there, returning by lake and common to Northwood. Walking distance 4 to 5 miles. Guide, Mr. J. E. Whiting. Take return tickets to Pinner.

July 26.—Wimbledon Common. Assemble at Barnes Station (S.W.R.) at 2.43 p.m., on arrival of train leaving Waterloo at 2.20. Walk by Roehampton Lane to the woods on the south side of Wimbledon Common. Tea at Kingston Vale.

ANSWERS TO CORRESPONDENTS.

Dr. A. Hughes.—*Cephalanthera ensifolia*, an uncommon plant.

Rev. A. H. Courthope.—Merely a sport of *Plantago lanceolata*.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., Richmond, S.W.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

No. 152. AUGUST, 1902. Vol. XIII.

OBJECTS OF THE SOCIETY.

To preserve from unnecessary destruction such wild birds, animals, and plants as are harmless, beautiful, or rare. To discourage the wearing and use for ornament of birds and their plumage, except when the birds are killed for food or reared for their plumage. To protect places and objects of antiquarian interest or natural beauty from ill-treatment or destruction. To promote the study of natural history.

SELBORNIANA.

Want of Thought.—Several correspondents have called our attention to the announcement of some thousands of stuffed larks prepared by a West-end caterer for the Coronation celebration, in spite of the fact that at this season the lark is protected by law. Messrs. Marshall and Snelgrove, of Leeds, announced in May a show including "hats trimmed tulle and blackbirds." When it is suggested that a pack of beagles kept by boys should be used as a drag hunt, instead of hunting hares, an official irrelevantly replies that he sees no reason for the "abolition" of the pack. No amount of repetition seems sufficient to convince ladies that "aigrettes" are not artificial. Truly,

> "Evil is wrought by want of thought,
> As well as want of heart."

The Commons' and Footpaths' Preservation Society.—After an interval of three years this Society has issued another detailed Report of its work, a report of which its authors may

well be proud. It is impossible here even to mention a tithe of the cases with which it is concerned. The Brockwell Park extension, the Ashdown Forest light railway, the Stonehenge enclosure, the view from Richmond Hill, the recovery of Hainault Forest—these are but a few of the directions in which the Society has been, and is, active. The Report is illustrated by five instructive plates, to some of which we hope to refer on a future occasion.

Spurious Sports.—We are glad to learn that the Bishop of Hereford's Bill is to be introduced in the House of Commons, where we trust it may meet with more consideration than it did at the hands of our hereditary legislators.

Bird Protection.—Just as we go to press we learn that the Royal assent has been given to the short Act of Parliament which provides that "Where any person is convicted of an offence against the Wild Birds' Protection Acts, 1880 to 1896, the Court may, in addition to any penalty that may therein be imposed, order any wild bird, or wild bird's egg, in respect of which the offence has been committed, to be forfeited and disposed of as the Court shall think fit."

A PORTRAIT OF GILBERT WHITE.

S the question of a portrait of Gilbert White has been raised in Nature Notes for July, perhaps I may be allowed to state briefly what is really known upon this point.

Many years ago, during the lifetime of Gilbert White's nephew Francis, and (I believe) of his nephew John White, to be presently mentioned, an application was made by Oriel College to various members of the White family to know if there was any portrait, or even sketch of any kind, from which a picture of the naturalist could be painted for hanging in their Hall; the answer was, however, that there was nothing of the sort in existence.

As regards the north-east folding view of Selborne in the quarto editions of the "Selborne," I personally never heard of any names attached to the little figures therein depicted, until Mr. Bell published his edition, in which he gives, curiously enough, an account of them twice over (*cf.* vol. i., p. lviii., note, and vol. ii., p. 130, note). His authority for this was, I think, certainly either the Rev. Francis White, who resided during the latter part of his life near Andover, or the Rev. Edmund White, who was Vicar of Newton Valence; but more probably the former of these gentlemen, who is mentioned five or six lines previous to the passage in vol. i. as describing White's personal

appearance to the author. Now upon this authority Mr. Bell named the figures (1) Mr. Yalden, (2) Mr. Etty, brother of the Vicar of Selborne, (3) Mrs. Yalden, (4) Thomas White.

In 1893 the Rev. John Tahourdin White, a son of John White (*filius* Benjamin) told the present Lord Stamford that "the figure coming out of the tent was Thomas White, those in the centre were Mr. and Mrs. Yalden, and the figure coming up the hill was Gilbert White himself."* Now Dr. J. T. White was born seventeen years after Gilbert White's death, and cannot *prima facie* be considered as good an authority as either of Gilbert White's nephews Francis or Edmund, who were partly his contemporaries and knew him well. But there is a most undoubted error in this account of Dr. J. T. White's, which casts a strong element of doubt over the accuracy of the whole of it, since, according to him, the picture contains the figures of two clergymen, White and Yalden, whereas it is quite clear that two of the three men's figures are laymen, only one of them wearing the clerical bob wig! For this reason I prefer to accept Mr. Bell's account, which comes to us directly from an earlier source, and may be wholly correct, whereas Dr. J. T. White's statement stands convicted of at least one error.

It will be noticed that in both of the above statements the figure near the tent is given as that of Thomas White. He was not at Selborne during Mr. Grimm's visit there; but he knew Grimm personally, since he had visited him in London (see my "Life" vol. i, p. 288), and nothing is more likely than that he, who urged the inception of the "Selborne," and was constantly consulted by his brother during its progress and revision, should wish to be depicted in the general view of the place he knew and loved so well. I think, then, that he may have been sketched into the view by Grimm after the latter's return to London, when possibly the tent was added to the picture; for I do not believe that Grimm, or anyone else, ever saw it standing upon common land at Selborne, and at some distance from Gilbert White's grounds, as it appears in the foreground of the view. It may be recollected by readers of Miss Catharine Battie's "Journal at Selborne" that she "drank tea under the tent in his [*i.e.* G. W.'s] sweet fields"—a much more likely locality.

The suggestion that the figure sitting under the tree in the view of the Plestor given in the original edition of the "Selborne" is intended to represent Gilbert White is now, as far as I am aware, made for the first time. This figure is that of an apparently elderly clergyman; but here all resemblance to White ceases. He himself tells us in the letters which I published that he had "short stumps," *i.e.*, legs, and that he was incorrigibly thin; whereas the figure in question does not seem to be either short or thin. As for the dog represented, it

* I quote from a full report of Lord Stamford's speech, which I listened to at the Centenary Meeting at Selborne in 1893.

may be a spaniel, or indeed almost any breed of dog; and it is true that White, who owned many dogs in his time, possessed a long-eared spaniel in 1792 (whose skin I may mention forms the binding of Thomas White's copy of his brother's book, now in my possession); but there is no reason to suppose that Grimm ever saw this dog, since there is no record of his having occasion to visit Selborne in the later years of White's life. Since this view of the Plestor is not mentioned in the list which White gives of the sketches made during the visit to him in July and August, 1776, it must have been drawn at a later date, and it seems certain that Grimm was in the immediate neighbourhood of Selborne in the later summer of 1776, since I find the following passage in an (unpublished) letter to Thomas White, August 12, 1776: "G. is gone to Winchester for 8 or 10 days. . . . on his return Lady Stuart desires to employ at Harteley." If any cleryyman actually sat for the figure under the tree in the Plestor sketch, I think it is more likely to have been Mr. Etty than Gilbert White, since in the latter event there would surely have been some tradition of the occurrence in his family. There is none, however; and there is, alas, no real reason to believe that any vestige of a portrait of the kindly old naturalist is extant.

July 3, 1902. RASHLEIGH HOLT-WHITE.

A "WHITE" FAMILY BIBLE.

THE interest shown in the loan collection of editions of "The Natural History and Antiquities of Selborne" exhibited at the last Annual Meeting of the Selborne Society, was considerably increased, I think, by the exhibition of an ancient Breeches Bible, containing entries, on the backs of both covers, relating to the family of which Gilbert White was so distinguished a member. Some further particulars of the entries and of the book may perhaps be of interest.

The title-page to the first part is unfortunately in a very torn condition, but enough remains to show the contents of the book. It was as follows:—

"The Boke of Common Prayer, with the Psalter or Psalmes of David, of that translation which is appointed to be read in Churches. Imprinted at London by Robert Barker, Printer to the Queenes most excellent Maiestie. Anno 1601. Cum privilegio Regiæ Maiestatis."

Next follows:—

"The Bible: Translated according to the Ebrew and Greeke, and conferred with the best translations in divers languages. With most profitable annotations upon all the hard places, and other things of great importance, as may appeare in the Epistle

to the Reader. And also a most profitable Concordance for the ready finding out of any thing in the same contained."

It also contains the Apocrypha.

The Bible bears date 1602, and the title-page shows armorial bearings representing the twelve tribes of Israel, together with representations of the twelve Apostles. Near the top centre is a rising dove, and near the bottom centre a lamb and flag.

The book is solidly bound in wood, covered with leather, and is protected at the corners by brass. Portions of former brass clasps still remain. It has been re-backed with leather and brass strips. The measurements are $9\frac{3}{8}$ inches by 7 inches by $3\frac{1}{2}$ inches.

THE WHITE FAMILY BIBLE.

The two very important pieces of paper which have been pasted inside the binding bear the following entries :—

(i) *At the beginning of the book.*

"John White born ye 30th November ——
Rich. White born 24th Augyst 1647
Hendry White born ye 28th Dec 1648
Gilbert White born ye 15th Feb : 1650
Francis White ye 8th Nov : 1652
Mary White — 15 —— ——
14th Nov : 1659 ,, ,, born abt 14 Nov
————————8 De —

1670 Brother Richard departed this life July 26 abt 11—1
1684 My Father departed this life Sept ye 2—
about eleven at night
My Mother dyed Sept : ye 6th — 1683 (? 8)

The births and baptisms of ye children of Gilbert and Rebecca White

John White was born Apr. 29th at 4 o-clock in ye afternoon 1688 being —— and baptized May ye 23^{d} being on a Wednesday at —— in Surrey

Mary born March 9th —89 being Sunday abt 4 in ye morn, & baptised Apr. 1st —90 being —— at Selbourn Hants.

Samson born 10$^{th.}$ 31st . 1691 . being Thursday abt 7 in ye morn, & Xtned —— 169½ at Selbourn Hants, and dyed there on 16 . 1702, abt 10 ——

Rebecca born Apr. 18th 1694 being Wednesday about 12 at noon, & Xnd —— being Tuesday at Selborne Hants.

Dorothea born April 26th. 1696 being Sunday about 12 at noon Xnd May 19th. being Tuesday at Selbourne. Hants.

Elizabeth born June 30th 1698 abt 7 in ye morn on a ——— & Xnd July 2—th on a Munday being St. James's day at ——

John (*altered to* Gilbert) son of John White was born July 18th 1720

Catharine Susan Isaac was born 9th 11th 1720 (*here follows an erasure*)

John son of John White was born 7th 29th 1721

Mary Jane was born Apr. 8th, 1722"

These entries are in at least three different handwritings, which I make out to be those of Sampson White, born 1607, John White (son of Sampson), and, from the resemblance of the writing to that on the final page, Gilbert, the grandfather of the naturalist. The book would not appear to have actually been in the naturalist's own possession, but passed to one of his uncles or brothers, or the strange error of entering John instead of Gilbert, afterwards corrected, would not have been made. The correction is well shown in the photograph, from which the illustration has been made, and for which I am indebted to Mr. Watson, a member of the Ealing Branch.

(ii) *At the end of the book.*

The entries on the final page are as follows, and are undoubtedly in the handwriting of Gilbert, the grandfather of Gilbert White, of famous memory.

"Uncle John White bapt. Febr. 12th 1601
Uncle Richard June 10th ——— 1605
Uncle Henry November 2nd ——— 1606
My honrd Father Sampsō Wh. 9th . 30th 1607
(dyd 7th 27th 84)
(viz. 77 years wanting 2 months)

Aunt Eliz. December 26 ——— 1600 Veriscow
Aunt Magdalen May 10th ——— 1612 Sedgwick & Wood

The Births & Baptisms of ye children of Gilbert & Rebecca White.

John born Apr. 29 . 1688 & bapt. May 23
Mary born March 9 . 1689 & bapt. Apl —
Sampson born xth . 31 . 1691 & bapt. Jan. 26
Rebecca born Apr. 18 . 1694 & bapt. May 22
Dorothea born Apr. 26 . 1696 & bapt. May 19
Elizabeth, born June 30 . 1698 & bapt. July 25."

Some of the dates are too indistinct even to make a conjecture as to what they are meant to be. Others, it will be no doubt observed, differ slightly from those given in the genealogical chart in volume ii. of Holt-White's "Life and Letters of Gilbert White."

It only remains for me to add that this interesting book is in the possession of Miss G. White, of Crondall, near Farnham, Surrey, and she has very kindly given me permission to print these notes.

EDWARD A. MARTIN,
Author of "A Bibliography of Gilbert White."

NATURAL HISTORY AT "THE GROVE," STANMORE.

THE members of the Selborne Society who constitute the Field Club had good reason for looking forward with pleasurable anticipation to the ramble which Mrs. Percy Myles was able to arrange on June 28. Indeed, a visit to the scenes where "Wild Nature" was "won by kindness," must of necessity have proved a matter of no small interest, but when Mrs. Brightwen revealed herself in the capacity of both hostess and guide, a fullness and a charm was added which the occasion would otherwise have lacked.

The party which was an unusually large one started from Pinner station, and under the leadership of Mrs. Brightwen's steward, Mr. Odell, went through fields and across commons to Great Stanmore. On the way a rural street was traversed, which, for some reason not forthcoming is locally known as "the City." The grounds of "The Grove," which lie in two counties and three parishes, were entered from Stanmore Common, which still has its pleasing character marred in places by the results

of disastrous and scarcely accidental fires. Passing the ornamental lake, crowded with water-lilies and dotted with water-fowl, the journey was continued to the house, where Mrs. Brightwen received the party, on the spot where at lunch time the squirrels wait for nuts. After tea Mrs. Brightwen introduced the visitors to her pets, described her rarest plants in the conservatory near at hand and then made a tour of her museum. Here many creatures, whose interesting histories have been written, are preserved, the mungoose, the monkeys, the sacred beetles and numbers of others. Not the least noticeable feature of the collection is the series of small skulls, and the objects illustrating Biblical history, though not necessarily of a natural history character, must not be passed over.

The proceedings were enlivened by the advent of a large broad-nosed eel, discovered, shortly before, making a journey of discovery in one of the meadows. It was a gigantic fellow upwards of four feet long, and during the evening it was carried off to the Zoological Gardens by a keeper who arrived for the purpose.

Saying goodbye to Mrs. Brightwen, the party paid a visit to the gardens and greenhouses, and passed the quiet spot where in the early mornings birds and voles come boldly to be fed at Mrs. Brightwen's hands. The strange flowers of the varied species of *Aristolochia* reared under Mr. Odell's care created considerable interest, while the startling appearance of some of the gourds was enough to arrest attention. In one species the orange fruit splits into three lobes and the seeds covered with red pulp hang down like clots of blood. Mr. Odell had also hybrid poppies of his own producing to show, and added to the indebtedness of the party to him by pointing out the rare British plants which find a home in the open gardens.

WILFRED MARK WEBB.

NATURE NOTES IN SKYE.

THERE is a curious contrast, as regards natural history interest, between the coasts of Skye and its interior. The latter is strangely destitute of animal life; you may walk all day about its jagged, rock-strewn hills and wild valleys, and see scarcely a sentient thing. The writer, in the course of a day's ramble, observed the fauna of the island —as represented only by a toad, a frog, and a few rock pipits. True it is that golden eagles are occasionally seen, but in very small numbers—and lucky is the man who may discern one through his field-glasses in the course of two or three days' wanderings.

The impressions of stern desolation, and of lifelessness, are

aided by the almost total absence of trees, and, in places, by the lack of any vegetation whatever. Scott's well-known description of Loch Coruisk and its surroundings, in the "Lord of the Isles," would apply to much of the island. The hills were produced by volcanic action, and, in many cases, their bare slopes are of the true lava-red. These (it is stated by Sir Andrew Ramsay, in his "Physical Geography of Great Britain") are formed of acid rocks; while the chief range, the famous Coolins, magnificent of outline, are of dark, basic formations—gabbro and dolerite. These latter have grass growing to about a third of the way up. But, as you descend towards any one of the sea-lochs, that, with their varied and beautiful curves, indent the coast right round Skye, the scene changes to one of glorious vivacity. The shores are a mass of birds of very many species, particularly at low tide, when they collect to feed on molluscs, small crustacea, &c. Almost every kind of gull, from the great black-backed to the graceful little kittiwake, may be observed; quantities of oyster-catchers and curlew, also flocks of golden plover. A little way out wild duck and widgeon may be seen breasting the ripples. When the gleams of the silvery sun that breaks out between driving rain-squalls, on a typical Skye day, light up the scene, and show this varied company at work on the shell-fish, amid a thick tangle of golden sea-weed, the whole backed by dark velvety hillsides that sweep straight down into the sea, the effect is very fine and full of interest. The clamour is incessant, the plover's shrill whistle rising above all the other sounds; and the restless crowd keep changing their positions, and coming and going; now a flock of curlew rise and fly across the loch, now some oyster-catchers run swiftly along the water's edge in search of a fresh feeding-ground; or perhaps a fishing eagle, that has been hovering overhead, swoops suddenly down upon the water.

Deer, too, are more likely to be seen near the shore than inland. As we drove along the coast and through Lord Macdonald's forest, in the early morning, two bucks came and gazed at us with innocent wide eyes. That most delicious time of day is the best for seeing them, for it is then that they wander down to taste undisturbed the rich grass of the coasts.

Porpoises often come near the shore, and occasionally a seal makes its appearance.

The flora of Skye appears not to be of a very interesting description, but if it were visited in the flowering season no doubt some rarities might be observed. We saw several specimens of a small rose with black hips and bronzish leaves, apparently the Burnet rose, an uncommon species.

This paper consists, as its title indicates, of but a few desultory gleanings from the natural history of this romantic island. They may possibly serve to indicate that a naturalist whose time, or money, limits him as to distance, might do worse than spend his holiday in the wild and wind-spent Isle of Skye.

M. B.

OOLOGY.

ALTHOUGH the study of oology is now being pursued by so many, there are still those to whom a few hints on the subject would not come amiss. It is for these that I now pen a few remarks on the collection and preservation of these most pleasing tokens of the life which surrounds us. To begin with, the bird should, if possible, be identified when first seen, as too frequent journeys to a nest are apt to cause the owners to forsake their home. When identified, one egg—it is cruel to take more—should be taken, wrapped in cotton-wool and placed in a box, so as to ensure its safe carriage home. It is a very bad practice to blow eggs at the nest, as it cannot be so carefully and neatly executed as when done at leisure, though when blown they are safer to carry. The nest should now be examined and fully described in the recording book. When the day is over it is best to blow the eggs as soon as possible, and to do this properly I would recommend the following as the best method. First of all, if the egg is dirty it may be gently washed with a small soft paint brush, being careful not to obliterate the delicate markings. It must now be decided upon which side is the most characteristic, and on the opposite one a small hole must be pierced with a needle; in this hole a suitably sized drill is introduced, which, if rapidly turned with little pressure, will produce a neat, round hole. During this and the preceding operations the egg should be held over a basin containing a saturated solution of salt, so as to preserve it from breakage should it chance to fall. Turn the egg, hole downwards, and steadily blow into it through a glass blowpipe, taking care to keep the point just clear of the egg, as both egg and pipe may be smashed if this is not attended to. When the shell is empty it should be washed out with cold water till clean, when it may be dried by placing it, hole downwards, on blotting paper. It should be drained in some dark place, as the light causes it to fade. When quite dry, each egg, accompanied by such a statement as would lead to its identification if such were not known, should be placed in its division in the cabinet, which should not be opened more than is necessary. In order to preserve specimens as much as possible from the "insect pest," a supply of camphor, or naphthaline, should be freely sprinkled in the drawers.

Much more might be said on this interesting subject, but enough has been said to enable a beginner to preserve his specimens on more scientific lines than formerly.

F. W. L.

REVIEWS AND EXCHANGES.

Nature Study and Life. By Prof. C. F. Hodge, Ph.D. Ginn and Co., Boston and London. Price 7s.

We are only just awakening to the importance of Nature-study as an educational instrument, and, though we have already excellent "Readers," such as Mrs. Fisher's "Eyes and No Eyes Series," in this country we have as yet no such manuals as America has produced. The present work, from the pen of one already well known as a biologist, is perhaps the best of an excellent series. Household and garden insects, garden flowers, fruits and weeds, frogs and toads, the commoner birds of America, trees, aquaria and the principal types of cryptogamic plants, are each in turn made the texts for admirably terse and suggestive lessons, for teachers rather than for children. Nearly two hundred illustrations, some of which are exquisite, though others gain nothing by being photographs, add to the attractiveness of a fascinating volume.

The Cambridge Natural History, Vol. X., Mammalia. By F. E. Beddard, F.R.S. Macmillan and Co. Price 17s. net.

Mr. Beddard has had a very difficult task. The Mammalia are a far more numerous and more varied group than are the Amphibia and Reptilia, for the

ROCK WALLABY (*Petrogale xanthopus*), × $\frac{1}{7}$. From Beddard's "Mammalia," by permission of Messrs. Macmillan and Co.

treatment of which groups Dr. Gadow had a volume of equal size to the present. They were dealt with, moreover, in a single volume, about one-third larger than Mr. Beddard's, and of the highest excellence, by the late Sir W. H. Flower

and Mr. Lydekker some ten years ago, since which date several most interesting new types, such as the Australian Marsupial Mole, the Okapi of Equatorial Africa, and the "sub-fossil" Ground-sloth *Glossotherium* of Patagonia, have been discovered. When we say that Mr. Beddard gives a systematic account of all the more important genera, both living and extinct, dealing not only with their distinctive structures, but also with their habits, and yet manages to devote upwards of a sixth of his work to such valuable preliminaries as the comparative anatomy, geographical distribution and possible forerunners of the Mammalia, it will be seen that in condensation alone he has performed a remarkable feat.

AUSTRALIAN ANTEATER (*Echidna aculeata*), × $\frac{1}{6}$. From Beddard's "Mammalia," by permission of Messrs. Macmillan and Co.

DUCK-BILLED PLATYPUS (*Ornithorhynchus anatinus*), × $\frac{1}{6}$. From Beddard's "Mammalia," by permission of Messrs. Macmillan and Co.

He reproduces, with but brief comment, Wiedersheim's admirable figures of the different forms of the stomach in the Class, and devotes no less than eighteen pages to the dentition, whilst in the systematic portion of his work, he, as we think, rightly gives more space to the primitive groups, the Edentates and Marsupials, than to higher and more familiar types. Man and *Pithecanthropus* between them occupy only the final six pages of the work. Nearly three hundred illustrations, as excellent as those in the previous volumes of this series, adorn the work, and, by the courtesy of Messrs. Macmillan and Co., we are able to give, as examples of these, three characteristic Australian species. We could have wished that *Ocapia*, *Glossotherium* and *Pithecanthropus*, had been included among the types illustrated.

Butterflies and Moths of Europe. By W. F. Kirby, F.L.S. Parts II.—V. Cassell and Co. Price 7d. each net.

The last few years have undoubtedly witnessed a marked advance in the possibility of providing really good colour-printing at a very low price. In this work Messrs. Cassell have taken a leading part. We do not think, however, that in any of the serial and other works issued by them has so high a standard of technical excellence been attained as in the present series. Plate 8 representing the Vanessas is really beautiful, though in singling it out we have no wish to disparage the others. Many larvæ and food-plants are figured and additional illustrations are given in the text. Mr. Kirby has taken the opportunity of the re-issue to revise what is already recognised as a standard example of the best class of popular natural history books.

The Face of Nature: Popular Readings in Elementary Science. By the Rev. C. J. Ovenden, D.D. John Murray. Price 2s.

Canon Ovenden tells in the simplest language possible the stories of weather forecasting, vegetable life, the record of the rocks and "a common stone," and gives us eighty-six simple diagrammatic outline drawings for lantern-slides to illustrate the four lectures. He should have been more careful to select truly authoritative works as the bases of his compilation; but we are bound to add that we have detected very few inaccuracies. "The Great Ice Age" is not by Sir Archibald Geikie, and we never before heard the suggestion that the Glacier-garden at Lucerne was the work of the Rhone glacier. It is hardly advisable now-a-days to speak of *Eozöon* as an animal without qualification.

The Ross Bird-stalker: a Book for Field Naturalists. By Charles Dixon. Ross, Ltd., New Bond Street. Price 6d.

This is a report on the advantages, possibilities and uses of the Ross Prism Binocular as applied to Field Natural History, illustrated by some exquisite examples of what may be seen by means of it. Though primarily, no doubt, a trade advertisement, Mr. Dixon's position, and the careful tests he has applied, give to this pamphlet more than the usual weight of a mere puff, while no one who has ever used one of these instruments will think that he has said a word too much in their favour.

Astronomy with an Opera-glass. By Garrett P. Serviss. Eighth edition. Hirschfeld Brothers. Price 6s. net.

The fact that this manual has in a very few years passed into its eighth edition proves that, in showing what can be done in astronomy without costly special appliances, it has met a want. Of its five chapters, four deal with the stars of spring, summer, autumn and winter respectively, and the fifth with the moon, planets and sun. Twenty star-maps are given, besides other illustrations.

East Kent Scientific and Natural History Society. Reports and Transactions. Series II., vol. i. Edited by A. Lander. Canterbury.

The use of newspaper reports of meetings printed in double columns certainly enables our Canterbury friends to give their members a good deal of matter. This annual report contains fifty quarto pages and is illustrated by a portrait of the late Mr. Stephen Horsley, who died while President of the Society, and by eight other whole-page illustrations. Many of the papers are admirable and practical, though local Natural History figures but little. It cannot, however, be said that the type is pleasant or the size convenient.

Agricultural Botany, Theoretical and Practical. By Prof. J. Percival. Second Edition. Duckworth and Co. Price 7s. 6d. net.

We are not surprised that Professor Percival's "Agricultural Botany" has required a second edition in less than two years after its first appearance. There was no work of the kind in existence. A quarter of a century ago agricultural students had an excellent manual—for that date—in Professors Church and Dyer's edition of Johnson's "How Crops Grow"; but the purely botanical aspect

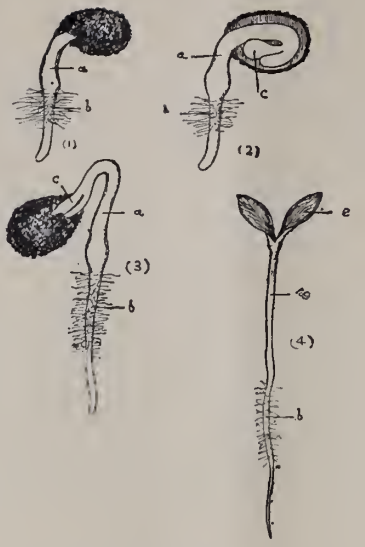

FIG. 138.

1. Potato seed germinating.
2. Section through the same, showing position of cotyledons and endosperm (shaded).
3. Seedling nearly free from seed-coat.
4. Seedling quite free (10 days' old); *a* hypocotyl; *b* root; *c* cotyledons.

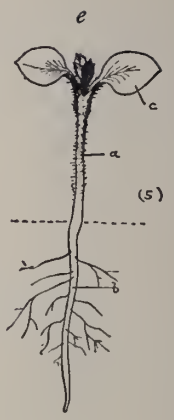

FIG. 139.

Potato seedling (16 days old), later stage of 4, in previous Fig., showing plumule *e*. The cotyledons *c* have become broader; *a* hypocotyl; *b* root. (Natural size.)

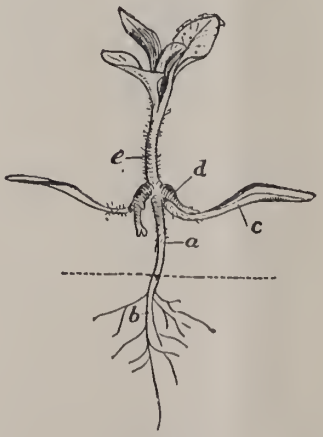

FIG. 140.

Potato seedling (26 days' old), later stage of Fig. 139. The Plumule *e* has developed considerably, and in the axils of the cotyledons two shoots *d* have been produced. *a* hypocotyl; *b* root; *c* cotyledons; *e* epicotyl; *x* ground-line (Natural size).

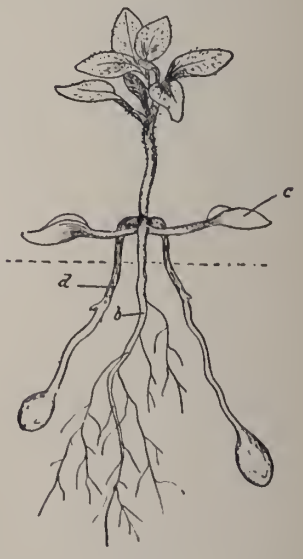

FIG. 141.

Potato seedling (10 weeks' old), later stage of Fig. 140. The shoots *d* have now pushed their way below ground and at their tips small tubers have formed. (Natural size.)

of agriculture had long called for separate and extended treatment until the present work was published. Any one who has been through the farm and class-rooms at Wye will be prepared for the thoroughness of the work. No previous knowledge of Botany is assumed; every step is referred to the test of experiment; and, though three-eighths of the work deals with the general anatomy and physiology of plants, the practical bearing of the study is never forgotten. Farm crops, weeds and seeds, fungal diseases and bacteria, all receive adequate treatment, and the illustrations, especially those of grasses, from the author's own drawings, are trustworthy, though often obviously the work of one not trained in drawing for reproduction. The samples, which, by the courtesy of the publishers, we are able to give, illustrate the thoroughness of the entire work.

Proceedings of the South London Entomological and Natural History Society, 1901. With two plates. Hibernia Chambers, London Bridge. Price 2s.

Neatly printed, well edited and indexed, this part, which runs to ninety-two octavo pages, seems rather dear at two shillings. It is largely occupied with abstracts of proceedings, a report which shows a most satisfactory balance, and some admirable accounts of field meetings—matters interesting mainly to members. Only two papers appear *in extenso*, one on "Fossil Insects," by W. West, and one on "Rearing Lepidoptera," by A. M. Montgomery.

Received: *The Naturalists' Journal*, *The Naturalist*, *The Irish Naturalist*, *The Humanitarian*, *The Animals' Friend*, *Our Animal Friends* and *The Animal World* for June and July; *The Country* and *The Agricultural Economist* for July; and *The Victorian Naturalist* for May, 1902.

NATURAL HISTORY NOTES AND QUERIES.

Do birds assist one another in making nests?—On the north side of our house there are two nests of martins in course of building. One martin was seen to fly up to one nest with a feather in his beak: a martin in the said nest appeared at the opening and took the feather from the other martin, and then the martin who brought the feather flew away to its own nest a yard or two off.

Foxton, Cambs. A. M. GREENWOOD.

Nests.—Several nests in odd places have come to my notice this spring. One robin built in a flower-pot lying on its side in a potting shed frequented by garden boys; when they saw the robin was building, they left the door of the shed open at night, and a young family was safely reared, in spite of two garden cats. Another robin built in an old cocoa tin which was lying on its side among the grass in a churchyard. The tin was rolled over by my dog, and the robin flew out. Only one egg hatched out of four; but that one became a very fine bird. Blue tits, as usual, occupied a nest box (having turned out a pair of coletits who had taken the liberty of beginning a nest), and reared seven out of nine eggs. Another box, generally used by blue tits, was occupied by a wasp, *Vespa Norwegica*, which built a neat little pear-shaped nest, hanging from the top. When the young wasps came out they enlarged the nest till it touched the sides of the box, 3½ inches across, and then it was time to put a stop to their energy. House martins are very plenttful this year. One pair has taken a swallow's nest of last year, and another pair began a nest close by it, but was dislodged by sparrows. Swifts also are very common, more so than I have ever noticed before here.

Botley, Hants. M. S. JENKYNS.

Cuckoo's Egg in Unfinished Nest.—In answer to Mr. Bamford's question, I am glad to tell him that I had a similar experience last year. I found a cuckoo's egg in an unfinished nest, which also appeared to be the work of a hedge sparrow. I left the egg to see what would happen, and visited the nest three times, allowing a week to elapse between each visit. Finding that nothing

had been done towards completing it during this time I then took the egg, on May 31 as I see by my note book, and it is now in my collection.

1, *Sefton Terrace, Arundel.* W. S. CLEATHER.
July 5.

Mr. W. Shelley, of Swymbridge, North Devon, sends the following notes on the same subject:

"On June 23 (1893) I . . . found a nest which I took to be a meadow pipit's. Although apparently not finished (lining wanting), it contained an egg which was undoubtedly that of a cuckoo; and, from the exactness with which it matched one taken on June 5 within twenty yards of the same place, probably laid by the same cuckoo.

I removed the cuckoo's egg and substituted one of *Anthus arboreas*, which was of about the same size and general colouring, but on visiting the nest on June 25 found things as I left them, and the nest apparently deserted."

"June 15 (1895). Found an unfinished nest of hedge sparrow, which contained a cuckoo's egg. Size and colour totally different from hedge sparrow's."

The Goldcrest.—Some of your readers may be interested to know that a pair of goldcrests built their nest this year in our garden. The nest (a most exquisite structure) was suspended to a branch of a spruce fir, about four feet from the ground, on a shady part of our lawn. The eggs—about the size of a large pea—were five in number; we took one, and three were hatched out of the remaining four, one being addled. The young ones were flown by June 5. We were much interested in watching the progress of events in this tiny habitation, and our observations entirely confirmed the remarks of naturalists as to the fearlessness and confidence of the goldcrest. The little bird remained on her nest even when a hand was placed above it, while the steps of passers-by and the whirr of the lawn-mower did not seem to disturb her equanimity in the slightest. I shall be glad to know whether you think that Shakespeare was referring to the goldcrest in the well-known passage in Macbeth (Act iv., Scene 2)—

"for the poor wren,
The most diminutive of birds, will fight,
Her young ones in her nest, against the owl."

It seems to me that the description, both as regards the *size* and the *fearlessness* of the bird, applies with more correctness to the goldcrest than to the common wren. A. L. STEVENSON.

The Pleasaunce, Smeeth, Kent.
June, 1902.

A Remarkable Bird.—On Wednesday, May 7, 1902, an extraordinary bird flew over the garden in company with a rook. It must have been quite twice the size of this latter bird, with a light gray breast and a flight as grand as an eagle's. The outer edge of the wings turned over slightly. The bill seemed whitish and the tail long. I was told that it had been seen here once before, a month or so ago. It was described as being nearly as large as an eagle. The starlings and house sparrows seemed greatly disturbed.

The Poplars, Pucklechurch. BLANCHE A. CONEY.
June 1, 1902.

A Blackbird's Hygienic Instinct.—On June 1 my brother and I were walking down a lane near our house, when a cock blackbird flew out of the hedge just in front of us. My brother exclaimed, "Oh, what has that bird got in its mouth? It is something nearly as big as itself." The blackbird flew a little way with its burden, then dropped it at the side of the lane and flew off out of sight. Upon our coming up to the object the bird had dropped we found it to be a young blackbird, almost fledged sufficiently to fly. It had evidently been dead a day or two. My brother thought most probably it had died in the nest, and the old parent bird, finding it very much in the way, had made a great effort and carried it out in his beak.

The Rectory, Llantheny Skirrid, PARNELL JONES.
near Abergavenny.

Crows and Sparrows (p. 98).—In answer to Mr. Cuthbert allow me to say that the crow tribe kill and devour birds, full-grown or otherwise, whenever

they get the chance. In severe weather crows may be seen pursuing little starving birds that are weakened by hunger. I once noticed a wounded partridge with difficulty keeping pace with the movements of the covey. As it lagged behind a grey crow attempted to attack it, and was kept off by the others. I have seen a jay pursue a young bird on the wing, force it to take refuge in the grass, and there kill and devour it. Rooks eat the young of larks and other birds that nest in the open. Jackdaws rarely pay me a visit, but when they do it is generally to make a raid on the nest of some other bird. Last year a jackdaw destroyed a nest of young missel-thrushes that were about a week old, in my garden. I am always sorry to see them on my premises, their proper place being on the church tower and in the open field.

Market Weston, Thetford. EDMUND THOS. DAUBENY
May, 1902.

Chiff-chaff.—A neighbour has been counting the number of times this little bird repeats its name without stopping. Fifty-two is the highest he has noticed this spring, and the record number, according to a memo. in his diary, is sixty.

June, 1902. EDMUND THOS. DAUBENY.

Birds and Insects this Spring.—The severe cold this Spring has had curious and disastrous effects on many creatures. Some birds desisted from making their nests, or gave them up when finished. Linnets, starlings and sparrows left their half-built nests and congregated again in flocks. The eggs of ground-nesting birds, such as snipe, partridges, pheasants, wild duck, and others, were frozen or ruined. Young blackbirds, thrushes, robins, and hedge sparrows that had left the nest died wholesale. A friend says: "This arctic weather has been absolutely fatal to swifts. I have picked up six of them round the church during the last three days. Two of them this morning (May 22) were still warm; so it must have been last night's frost which put a finishing touch to their starving bodies: their breast bones were almost through the skin. Yesterday I found a dead swallow in the garden, and my churchwarden picked up three dead house-martins. It is very sad for the poor little chaps; but I hope the few survivors will rear extra strong and numerous families. They ought to, after surviving such awful weather. I went on the Heath yesterday and found lots of young linnets dead, and one nest of yellowhammers in the same state. A nest of long-tailed tits were all right, and so was another of wrens; the domed nest kept them warm." Bees were unable to work, and, when they could do so, did not find sufficient food to feed their young brood, in spite of there being abundance of bloom. Queen wasps, which are numerous, bumble bees and some other insects retired again to hybernate, and many died. The holly blue butterfly, whose caterpillars are to be found on the blossoms of my holly hedge, stood the cold well. It appeared in numbers at the end of April and is still a feature in my garden. There are quite as many hybernated butterflies about as in ordinary years.

May 30, 1902. EDMUND THOMAS DAUBENY.

Ants.—My garden is swarming with ants, both the black and red. The lawn is especially full of the red ones. I was wondering whether this is the result of the dry summers we have had lately, or what is the cause?

June 9, 1902. R

Helix aspersa.—In reply to Mr. Smallman, I may say that both *H. aspersa* and *H. nemoralis* are found living on sandy shores just above high-water mark of spring tides. They are to be seen in such situations at Shellness (near Sandwich, Kent) and at Sennen Cove (Cornwall).

68, *North Hill, Highgate, N.* J. E. COOPER.

Height of Trees in England (p. 188).—There may be some difficulty in obtaining a full and exact reply to Mr. Millard's enquiry, but on referring to the books I have here I find that Evelyn's "Silva" (pub. 1729) has several pages on the "stature of trees," whilst in "English Forests and Forest Trees," (London: Ingram, Cooke and Co., 1853), we are told that "The finest poplar (Lombardy) in existence is in the garden at Whitton. It is above 120 feet in height. . . . . The largest ash tree in this country (England) stands in Woburn

Park, the seat of the Duke of Bedford. It is 90 feet high from the ground to the top of its branches. . . . . One of the finest chestnut trees in England is at Studley Park, near Ripon. It is 112 feet high. . . . . The most magnificent beech tree on record is at Knole Park, Kent; its height is 105 feet." The above is rather ancient history, and I trust that more modern records will be forthcoming.

Dr. Schlich, in his learned "Manual of Forestry," gives the following extreme heights of British forest trees: beech, about 110 feet, and under specially favourable conditions more (in Normandy, 170 feet); hornbeam, 75 feet; oak, 110 feet (in Normandy, 150 feet); ash, 110 feet; elm, 110 feet, favourably 125 feet; maple may reach 110 feet; poplar, 110 feet; lime, 110 feet; silver fir, frequently 120 feet, but single trees occasionally 150 feet; spruce, greatest height of indigenous trees of temperate Europe, 150 feet; Scotch pine, 120 feet; Austrian pine seldom exceeds 75 feet in England; Weymouth pine, 120 feet or more; larch, 120 feet; Douglas fir, imported from North America, will outgrow all European forest trees.

I gather from this that the ordinary maximum heights of the principal British forest trees is the same for the different deciduous species, namely 110 feet, and this is natural, for were it otherwise the taller trees would suffer from the wind. The character of the needles (leaves) of pines allows of a greater height without excessive punishment by wind. By similar reasoning, trees in sheltered valleys attain to greater heights than in exposed situations. I was much impressed last year, when in Austria, by the great height of pines in the valleys, and their value from a timber point of view, because of their arrow-like, straight, yet large, stems.

Les Colondalles, Montreux, Switzerland, June 6, 1902. GILES A. DAUBENY.

In case you should be too much occupied yourself to reply to F. M. Millard's enquiry on p. 119 of your June number as to the height of the tallest tree in England, may I refer him to your book on "Familiar Trees," in which you mention the height of a beech tree in Norbury Park, Surrey, as being 160 feet. I have not heard or read of any English tree (coniferous or deciduous), taller than that; the Scotch fir at Warton, in Staffordshire, also referred to by you, being put at 120 to 140 feet, and an *Abies excelsa*, mentioned in the "Encyclopædia Britannica," at 140.

117, *Thurlow Park Road, Dulwich, June* 9, 1902. M. J. TEESDALE.

[I do not remember my authority for the statements quoted. Neither was from personal observation.—ED., *N.N.*]

Orchis latifolia and Orchis maculata.—Does a hybrid exist between the above plants? Last year I forwarded several specimens to Professor Boulger which varied very much from *Orchis maculata*, and which were commented on in Professor Boulger's paper in NATURE NOTES. On June 26 this year I visited the locality where the variable specimens were found, and growing in a damp place close to *Orchis maculata* proper, and also to the variable specimens, I found *Orchis latifolia*, with bracts half as long again as the flowers, *broad* leaves, sheathing the stems, *not* spotted, lip much broader than *O. maculata*, crenately notched, not deeply divided as in *O. maculata*. Sir J. E. Smith describes leaves in *O. latifolia* as unspotted, lip obscurely trifid, spur conical (Smith's "Compendium Floræ Britannicæ"); Sir J. D. Hooker, in "Students' Flora," says leaves usually spotted in *O. latifolia*, and he describes the lip in *O. maculata* as *deeply* three-lobed. The flowers in the variation seem to be more like *O. latifolia* than *O. maculata*, and finding the former in flower this year at the same time, I thought possibly a hybrid might occur between the two?

Cranbrook, July 9, 1902. A. W. HUDSON.

SELBORNE SOCIETY NOTICES.

Council Meeting.—The usual monthly meeting of the Council will be held at 20, Hanover Square, W., on Wednesday, August 13, at 5.30 p.m.

New Members.—E. G. Huntley, Esq., Upper Tooting: Donald Mathews, Esq., Redditch; Miss Elizabeth S. Kite, Nantucket, U.S.A.; Miss Marie V. Russell, Hindhead; Miss Alice R. Francis, Orpington.

Donations and Subscriptions.—The Council beg to acknowledge the following subscriptions over 5s.:—E. G. Huntley, Esq., 10s. 6d.; T. J. Barrett, Esq., 21s.

In the absence of the Librarian the Secretary begs to acknowledge with thank a copy of "With Nature and a Camera," from J. L. Otter, Esq.

FIELD CLUB RAMBLES.

June 21.—Clandon and Newlands Corner. On this occasion Mr. A. B. Wilkinson discharged the duties of guide, in itself a guarantee of a ramble fruitful in pleasure to those taking part in it, on what proved to be almost the finest day of this hitherto capricious summer. There was time enough for a peep at Newlands' Church, ensconced in greenery delightful in freshness from recent rains. Close by was a dense, towering mass of foliage of trees at one corner of Clandon Park. Many halts were called for the discussion of botanical specimens, and so agreeably and profitably the afternoon wore on. As the hill was negotiated the retrospect was much admired, and on the common was a huge pile of faggots meant to be fired on Coronation Day. After tea in the open, on almost the highest point of the down, to the accompaniment of bird music, a move was made to a view-point by the side of a clump of beeches near the old Pilgrims' Way. Peeping over a range in the foreground was the tower on Leith Hill: away on the right was St. Martha's Chapel, overlooking Guildford; while in the valley below was disclosed a panorama of beauty such as it would be hard to equal, and in the south perhaps impossible to surpass. Entire freedom from mist or haze also helped this visual treat. Larks and other songsters had been heard in plenty, and here, though so late in June, two or three nightingales gave fully of their vocal riches. The conchologist of the party reported the finding of *Helix cantiana* in abundance, one specimen being void of colour and almost white; also *Helix pisana*, *Helix rotundata*, and higher up on the chalk *Helix virgata* and *Cyclostoma elegans*.

July 5.—Leith Hill. Did any one feel disposed to call this a walk and not a ramble, it would be difficult to disagree with such characterisation, though we are sure that there would be on that account no wish to minimise the pleasure which the visit to Leith Hill, under the direction of Mr. A. B. Wilkinson, afforded. Leaving the train at Holmwood, twelve Selbornians breasted the rising ground till they reached the picturesque hamlet of Coldharbour, nestling under the hill itself. So far the route was in part through a wood, and thus a degree of relief was obtained from the direct rays of the sun, but of breeze there was little or none. Some mounted to the tower to enjoy the views thence unfolded, while some contented themselves with a less ambitious climb. As a summer haze lay upon the horizon, definition on the whole was not good; and yet the sombreness that brooded over the moorlands to the west, ridge after ridge, was in its way most effective, and reminded one of north country scenes. Birds were not much in evidence, and generally speaking the hush of the moulting season prevailed. In a bush in the valley a thrush's nest had been found with eggs that had been sucked; also that of a hedge accentor containing five eggs, carefully replaced after examination. A blackcap uttered a few sweet notes, and other warblers were faintly heard; while up on the hill the yellow hammers seemed tame and tolerably vocal, and noticeable too were the linnets which flitted chatteringly over the furze. Quite a feast of colour was *Erica cinerea*, as it illuminated the slopes, but the ling showed few signs of flowering. *Eriea tetralix* disclosed itself to the careful searcher, and along the road one of the hawkweeds, *Hypochœris radicata*, seemed plentiful.

July 12.—The ramble conducted last year to West Drayton and Uxbridge, by Mr. Wilfred Mark Webb, was so much appreciated that he was asked to

repeat it again this year, which he did with some modifications. As before, the path to Thorneywood Fishery at the foot of the railway embankment was followed. On the way meadow rue and marsh valerian were discovered flowering in abundance, and a puss moth captured on a willow tree where it had alighted to lay its eggs. The River Colne was crossed and its right bank followed for some time, when, returning to the Middlesex side, the party proceeded to Iver Water Splash. Very few views so near to London are pleasanter than that of the little ford, whence recrossing the river the Old Swan Inn at the village of Iver was reached, where tea was taken. Last year this necessary part of the performance was carried out at Uxbridge, after a walk which is not particularly interesting. Tea being finished the members returned to the ford, and here a halt was made while Mr. Webb made a few remarks upon and exhibited drawings and living specimens of British woodlice. The return journey was made along the banks of the canal to West Drayton Station. Among the interesting objects examined, were many kinds of molluscs, the inhabitants of ants' nests, several birds' nests, including that of the red-backed shrike, as well as stag beetle, dragon flies and centipedes.

FORTHCOMING RAMBLES.

August 2.—No ramble.

August 9.—No ramble.

August 16.—Ramble round Oxshott. Guide, Mr. Hunt. Train leaves Waterloo at 2.22 p.m. Meet at Oxshott Station at 3 p.m. Take cheap return tickets, 1s. 7d. In order to avoid the crowd at Waterloo Station these tickets can be obtained in advance at any of Cook's or Gaze's offices.

August 23.—Ramble round West Wickham. Train leaves Cannon Street at 2.22; London Bridge (S.E.R.), 2.25. Change at Elmers End. Take return tickets to West Wickham. Meet in the West Wickham booking office at 3.15. Guide, Mr. A. B. Wilkinson.

August 30.—Rickmansworth, through Rickmansworth Park along the Chess Valley to Chenies, returning either from Chorley Wood or Chalfont Road. Train leaves Baker Street (Met.) at 2.21. Take return tickets to Rickmansworth. Guides, Mr. and Mrs. Wilson.

September 6.—Hatfield and neighbourhood. Take cheap half-day return tickets, 1s. 9d. Train leaves King's Cross at 2.30 p.m. Tea at Bull Inn, Stanborough. Guide, Mr. E. A. Nash.

ANSWERS TO CORRESPONDENTS.

Kenelm.—*Pyrus Aria*, the White Beam, a variable species.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. As the Editor will be away from home during August, communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., care of the publishers.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

No 153. SEPTEMBER, 1902. Vol XIII.

OBJECTS OF THE SOCIETY.

To preserve from unnecessary destruction such wild birds, animals, and plants as are harmless, beautiful, or rare. To discourage the wearing and use for ornament of birds and their plumage, except when the birds are killed for food or reared for their plumage. To protect places and objects of antiquarian interest or natural beauty from ill-treatment or destruction. To promote the study of natural history.

SELBORNIANA.

The Nature-study Exhibition.—When we first heard of the proposal to hold a Nature-study Exhibition in July, we confess that we were convinced that there was no likelihood of a satisfactory organisation being carried out in the time then available. That our fears have not been justified—as they most certainly have not—can only be explained by the indefatigable energy of the prime mover, Mr. J. C. Medd, and of his coadjutors. The collection exhibited at the Royal Botanic Gardens, Regent's Park, from July 23 to August 5, far surpassed in copiousness, variety and interest, anything that the most sanguine well-wisher of the scheme could have thought possible. On six days during the Exhibition, conferences were held on related topics, under the most distinguished chairmanship, our President, Lord Avebury, appropriately opening the first of these with an address on the study of Nature. We will reserve any detailed attempt to speak of these debates until the publication of the promised official Report; but two comments we may make at once. Firstly, too much was attempted on each afternoon, the number of papers

by selected speakers on somewhat diverse topics allowing no time for adequate discussion. This is a mistake common to most conferences. Secondly, in their endeavour to secure the highest official recognition, that of the Boards of Education and Agriculture, the promoters, or rather some of the chairmen, allowed too much emphasis to be given to the political aspect of what was several times described as a new departure in our National methods of education. Nature-study was represented as a new and happy thought eagerly adopted by the Government educational authorities as a means of keeping the children of our rural districts in those districts after they leave school, and so bribing the land-owning and farming classes to look more favourably upon our primary school system and the money expended upon it. Fortunately the Exhibition itself evinced a wider and truer concept of the educational import of Nature-study on the part of school-managers and teachers than that shown in the utterances to which we refer. A conservatory with an earthen floor was by no means an ideal place for such an exhibition; and neither from the official catalogue, nor from the objects themselves could we disentangle any intelligible scheme of classification, though some was undoubtedly intended; but many of the individual collections were admirable, especially those shown by the School Boards of our large provincial towns, Birmingham, Leeds, Manchester, Liverpool and Leicester, and those of some of the higher schools for girls, such as the Cheltenham Ladies' College and James Allen's School at Dulwich. The Bootham School, York, by placing on exhibition nearly seventy yearly reports of their Natural History Society, demonstrated that Nature-study of the best sort is not truly an entire novelty in the school curriculum; but with this exception and the first-rate contributions of St. Paul's School, our Public Schools for the sons of the wealthier classes were but poorly represented. Most of the Training Colleges exhibiting showed a more complete recognition of our needs in this subject than would have been suspected, especially in the directions of blackboard drawing, clay modelling and brushwork; and though in some cases notes had been dictated or copied from text-books instead of embodying the learners' own observations, there were in various parts of the exhibition an immense number of first-rate note-books. We noticed with pleasure a complete absence of that rarity-hunting that used to be so common. Life-histories were frequently fully illustrated, excellently so by the Stepney Borough Museum: the timber of local trees formed a favourite object-lesson, though not one adapted to field observation; and methods of seed-dispersal were also well and often represented in the collections. A few examples of simple experiments in plant-physiology, such as those exhibited by the James Allen School and by the South-Eastern Agricultural College, and some contour maps, illustrated other departments of the work; but too often its geological side seemed not to have advanced

beyond the fossil-collecting stage. Space prevents our touching for the present upon other aspects of this excellent initial step; but mention must be made of the admirable series of stalls furnished by the publishers and makers of apparatus. Messrs. Ginn and others showed how much richer in text-books on Nature-study our American cousins are than ourselves; whilst —save perhaps on the score of cost—Messrs. Rudd's hermetically sealed glass cases of insect life-histories could leave little to be desired.

AN ANCIENT BRITISH BARROW.

I AM venturing to write a short account of a barrow in Cornwall which I examined last August, although the subject is not strictly natural history, and therefore does not perhaps come into the scope of the Selborne Magazine.

Chapel Carn Brea is a large hill situated in the division of Pemoith, about four miles from Land's End, Cornwall, and must not be confounded with Carn Brea, another hill of the same name near Truro, also very interesting and having British remains.

One morning last summer I set out to examine the "barrows" of which I had read in guide-books. Arrived at the bottom, the ascent was commenced along a narrow track which wound upwards towards the summit. In some parts it was thick with gorse covered with gossamer, and making fit resting-places for many butterflies—peacocks, tortoise-shells, and whites in thousands. About half-way up the hill-side we leave the track and turn into an almost unused pathway winding through the gorse, interspersed with large granite boulders. At last we have reached the top and behold before us a large cairn of piled-up granite. On closer inspection we discover a little doorway, into which a slim person may crawl. Within this he finds a small chamber neatly built and roofed with slabs of granite. Its dimensions are roughly: length, seven feet; breadth, one foot six inches; height, two feet. Two others may be discovered by close inspection, one with an entrance too small to be entered, the other fallen in. The whole cairn measures about ten feet in height. It belongs to the Neolithic period, and was excavated, I believe, by Borlase, who found skeletons and pottery which, I think, are now at Truro in the museum.

The view from the top must not go without mention. Northwards on the sky-line is visible a fine mass of granite named "Eagle's Nest," near Gurnard's Head. Turning gradually round, Penzance, St. Michael's Mount, and far, far away, the Lizard

came into view. South, in the middle distance, Buryan church stands out, beyond St. Leven's gap, where stands the Logan rock; and beyond again, eight miles out at sea, a thin line denotes where stands the Wolf lighthouse. To the West is Land's End, Seamen Church, the Longships Lighthouse, and a little further north, Cape Cornwall (said to be the only cape in England), and St. Just village. Far to the south-west a grey streak denotes where the Scilly Isles are situated.

On this hill John Wesley is said to have preached his first sermon in Cornwall to a large congregation of miners, who then inhabited St. Just, Sancreed, and other mining villages about here, but now, alas, do so no longer.

A Rugby Selbornian.

A COUNTRY WALK.

IT was eight o'clock, a fine morning towards the end of August, and we were all gathered round a large breakfast-table, planning different ways of passing the lovely day that was before us. We lived in a fine old house, fifteen miles from London, in the county of Kent, so famous for its hop-gardens and fruit orchards: the house was surrounded by a pretty garden, well laid out with spacious lawns adapted for all outdoor amusements. Beyond the garden was the beautiful park, with its stately old elms and oaks, while woods and cornfields lay in the far distance.

Very various were the plans proposed by each member of the household. Riding, driving, tennis, cricket and croquet were each discussed in turn, according to the different tastes of the speaker, and I was the only one who ventured to suggest a *walk*. My proposal was not a popular one, for they all declared I should be baked alive, and I soon found that if I carried out my plan, I should only have the birds and flowers for companions. Nevertheless, I resolved to go, for after all, I thought, Nature is often the best company and is far more likely to reveal its mysteries to me if I am alone.

So, directly after breakfast, I prepared myself for my walk, telling them not to expect me home till evening, for I meant to lunch with the birds in the woods! As I stood on the steps before the house, surveying the attractive scene before me, I felt uncertain for a moment which way to go, but I soon made up my mind that the woods and fields would be the most tempting, especially as it was harvest time.

As I walked through the garden everything looked bright and happy. The flower-beds were gay with every kind of

flower. Roses, geraniums, lobelias, carnations, German asters, sweet-peas and sunflowers, all seemed to smile a "good morning," while each blade of grass sparkled with its separate diamond, for the sun was not yet hot enough to melt the dew. The sky was a clear pale blue, without a cloud, and Nature, at least, seemed to have forgotten that cloudy and rainy days were to come. As I passed through the gate at the end of the garden, a sweet little robin flew across my path and I stood for a moment and watched it as it flew into a neighbouring bush, while the gurgling of a brook close by seemed to lend an accompaniment to its song.

There were many things about this brook which interested me. A little moorhen swam across the water, followed by her small family of five, and began to search among the weeds for food to satisfy her hungry little ones. A water-rat, too, seemed very busy with his own concerns, and my presence did not appear to interfere with his enjoyment: apparently he was fond of the fresh weeds which grew plentifully on the edge of the brook. But as I walked on, and the brook widened, I found that far more beautiful plants than weeds grew in this stream, for here were lovely water-lilies of the purest white, their dark green leaves making them look still more pure; and as I watched insect after insect settle on their snowy petals, it seemed to me that their beauty attracted even these tiny creatures. The green fly looked especially beautiful as it rested for a moment on one of the white leaves, while the sun shone on its wings, making them sparkle for a moment like an emerald. The air seemed full of all kinds of humming insects, from the velvety bumble-bee to the tiny gnat, while the busy bee flew from flower to flower in a most business-like manner, reminding me that "time waits for no man," and so I, too, must hasten, if I wished to finish my walk that day. So I bade farewell to my friend the brook and then turned my steps towards the harvest field, where the voices of the gleaners, mingling with the tinkling sheep-bells coming home from a distant pasture, attracted my attention. I crossed a green field filled with cattle, the different shades and colours of which contrasted in a picturesque manner with the brilliantly green grass and varied colours of the wild flowers. They looked very well content with their lot as they stood or lay about in groups, and I thought, as I passed them, how artistically animals generally arrange themselves. A few starlings hovered about round the cows, to prevent any flies or other insects from proving too troublesome.

The golden cornfields in the distance were so attractive that I walked more quickly: the harvest was a fortnight earlier than usual and the fields were all full of gleaners: their dark, sunburnt skins and coloured garments looked very picture-like against the golden grain, while the red poppies and blue cornflowers added to the brilliancy of the scene. The little pimpernels were all

wide open, assuring me that the fine weather was going to last. A faint breeze fanned the whole scene, not strong enough to lift a ball of thistle-down, while the large white convolvulus drooped languidly, as it nearly covered the low hedge. Birds and animals of all kinds seemed to have left their homes for a time to claim their share of the corn! Wood-pigeons cooed in the trees and finches of all kinds chirped from the hedges. Rats and mice had evidently come out for the day and enjoyed themselves in the grain.

A graceful little harvest-mouse climbed up to its beautifully constructed nest in the corn, a butterfly flitted here and there, and as I watched it spread its beautiful wings, now lighting on a piece of yellow charlock, then on a wild pansy. The tree pipits sang in the branches and descended from time to time on the wheat. Yonder, the magpies fluttered over the barley, which had taken quite a different shade of yellow to the wheat.

At the further end of the field stood a huge waggon drawn by three fine dark brown cart-horses, their glossy coats showing up very well among the golden corn, while their manes and tails were tied up with the straw. The ceaseless stroke of the reaper's hook fell on the ranks of corn, and they heeded not the passing train as it went on its way to the great city. Men, women, girls and boys were nearly hidden by the wheat. One girl had bound round her sheaf a girdle of twisted stalks, in which mingled the green vine of the convolvulus and the pink-streaked bells, which, alas, must soon fade.

How quickly summer comes upon us: it is difficult to believe it will soon pass away with all its beauties. Flowers we gaze on now will soon be hidden from our view, and the birds' songs will be hushed for winter's solemn season. Only for a time, however, we have to wait, for spring will come with fresh hopes, and the flowers, especially the violet, will look up from their green leaves and teach us a lesson of faith.

I passed from the harvest, across a field of stubble. The honeysuckle was in flower at the tops of the hedges, and below the flower were berries, the fruit of the former blossom. Yellow weed, or ragwort, covered some of the fields almost as thickly as buttercups, but they are not nearly such a rich colour. Little St. John's wort remains open, but the seeds are forming fast: haws are very plentiful this year, the branches are quite laden with the fruit; and there are also a great many hips. The birds seem to prefer the hips to the haws, for the former always disappear much faster. Blackberries are plentiful, too, but not quite ripe yet: altogether it is a good berry year.

From the stubble-field I passed into a green, shady wood. Here I resolved to eat my lunch under an old oak tree. A beautiful squirrel rushed across my path and scampered up a nut tree. He was evidently laying in his store for the winter: he seized a nut in his mouth, then sprang gracefully to an adjoining birch tree and disappeared from my sight. I went

on with my lunch, well satisfied with the seat I had chosen, the mosses at my feet were of so lovely a shade of green, and the birds seemed so tame as long as I remained perfectly quiet. A cock pheasant walked majestically out of the brushwood, followed by his little hen, but on perceiving me he uttered his well-known note, quickened his pace, and was soon out of sight.

As I finished my lunch and rose from my mossy seat I saw a brown dormouse, seated on a bough, eating an acorn held between its little pink paws. I stood for a moment to let it finish its meal. I think the acorn was a good one, for I read full satisfaction in its large, beady-black eyes! It soon finished its repast and sprang to the ground, as I, too, moved on. I thought I had never seen such a quantity of nuts and acorns before. As I approached the edge of the wood I stood for a moment to watch a party of rabbits at play. Very pretty did they look, darting in and out of the brushwood.

As I continued my walk I found that this little wood led into a beautiful forest of much larger trees, chiefly firs. Numbers of ants ran to and fro: the little red and black emmets and the large horse-ants (half an inch in length) all seemed equally busy. I watched two of these insects carrying a twig (like two men with a plank of wood). When they came to a rut in their road which the wheel of a cart had made, one ant went first with his end of the twig, dragged it up after him unaided and the second ant let go, leaving his companion to drag the twig across the rest of the path, till he came to a large heap, where he left his burden: this heap was composed of twigs, fir needles, and similar things, and over it a colony of horse ants swarmed.

As I walked through this forest of firs I felt as if there was a roof over my head, for the stems rise to the same height and then the dark foliage spreading, formed a roof: there is hardly any underwood, nothing higher than the fern: a vast silence extends on every side, nor was it broken by the flitting of birds or the rush of animals. The coo of the wood-pigeon was the only sound.

By degrees, as I walked along, the firs ceased and the blue sky appeared, more brilliant than ever, after the dark roof of the firs. The ground was covered with pink heath, with here and there a dash of another coloured furze. Doves cooed and flitted to and fro; and the hum of bees was heard. Once more I stood for a moment to feast my eyes on the scene.

I was on rather a high piece of ground. Before me were the hop-gardens and cornfields, and down in the valley beyond lay our little village, the Church in a group of trees, surrounded by cottages, with a few houses dotted here and there among the trees: the bells were ringing for Evensong. I resolved to go home by the village.

As I approached the hop-gardens the busy hop-pickers were all at work divesting the poles of their clinging burdens. The

people, especially the children, looked very happy, having left the smoky atmosphere of the town to enjoy themselves in the famous hop-gardens of Kent, with this graceful climbing plant all round them, the sweet scent of which is both healthy and refreshing to these poor souls, accustomed only to endure much misery. The gardens looked very pretty, for the hops, which grew in clinging clusters up the poles and met overhead, formed little avenues which it is a pleasure to walk through. Leaving the hop-gardens, I passed through a green meadow and descended a little hill into the churchyard, where I rested for a moment under a yew tree. A solemn stillness seemed to creep over me as I gazed on the graves around me. Death is the one thing that sobers and levels old and young, rich and poor, alike. Everything reminded me that evening was fast approaching, and I thought of those lines--

> "There is a calm, a sweetness and a power,
> That morning knows not, in the evening hour."

The air that had risen a little was laden with the scent of flowers. It is a curious fact that so many kinds of flowers give forth a sweeter scent towards evening. The sun was sinking in the western sky and the harvest moon had already risen when I got up from my seat.

As I passed through the village I noticed many a wife standing at her cottage door, watching with eager eyes her husband's return from his daily toil. School was over and a group of children were gathered round the forge, reminding me of Longfellow's poem, "The Village Blacksmith,"

> "The children coming home from school,
> Look in at the open door."

I met a few labourers returning to their simple fare and comfortable firesides, for the evening hour is especially sweet to those who, by their own industry, feel they have earned a few hours' repose. I hastened my steps as I crossed a field, which led to our house, and thought I had rarely spent such a pleasant and interesting day, and I wondered, as I entered the hall, if the other members of the household had been equally well amused. Many were the exclamations which greeted me as I came into the room where the family was assembled, but none of them seemed so well satisfied with the way they had spent their day as was I, myself.

REMARKS ON THE COMMON FLY.

THE winged insect called the fly, which has no respect for age or persons, settling as it does on all and everyone with cool effrontery and dauntless perseverance, which attacks almost everything edible and drinkable that one has in the house, and feeds on and drinks thereof after perhaps covering its legs and wings with dirt off some filthy object—this fly is still the pest of humanity almost all over the world as we read it used to be in former ages.

In these modern days of scientific research, when the greatest importance is placed on the discovery of a new germ which will spread disease amongst us, it is astonishing that so little notice has been taken of the fly in this respect. Quite apart from this insect being a general tormenter of mankind, it would seem to be evident that it cannot be otherwise than a cause of originating and spreading disease. When passing through the bazaars of Indian and Egyptian native cities, and through native villages, where flies swarm amongst the dirt and squalor, where many human creatures are ill with ophthalmia, smallpox, and other eruptive diseases, one can see flies flitting from the body of one sick person on to the eyes of another sick person, on to all and on to everything, sometimes singly and sometimes in swarms, and who can doubt that these flies are most dangerous enemies of mankind. It is not necessary, however, to go as far as India or Egypt to become convinced of the truth of this assertion. One has only to observe the habits of flies at home, especially at certain periods of the year; one has only to examine them through a powerful microscope, and one can imagine the rest.

Flies were doubtless created to serve some useful object in the great work of creation and the general system of the universe. They are doubtless appreciated as food by ants, spiders, &c., but however useful they may be, and however much appreciated by ants, spiders, &c., it is certain that we human beings would be very glad to be free from their presence in every way.

Some people adopt fly paper to attract and destroy them, which is very unsightly and only partially effective, but the great majority of us put up with the nuisance. Perhaps there are some people to whom it would be good news to hear that it is within anyone's power to kill annoying flies with what is called a fly-flap. With this weapon in the hand, a room full of flies can be cleared of them in a very short time. It only requires a short brisk stroke from the wrist, and the weapon itself is a piece of pliable leather, round or oval in shape, nailed on firmly at one end of a cane or stick about 2 feet 3 inches long. No fly can live against it, and there ought to be one of these fly-flaps in every household. My own is in constant use, and adds

immensely to my domestic comfort and perhaps safety. There is something very satisfactory, also, in killing an aggressive and persistent fly, notably a blue-bottle fly, which has been buzzing about your head either playfully or maliciously for perhaps a quarter of an hour.

Flies do not seem to dislike travelling, even across the seas—not like birds on the wing, but comfortably settled in and about the cooking places, dining saloons, &c., of ships and steamers going from one port to another. Thus English flies may disembark at various ports between England and India and *vice versa*, or they may go backwards and forwards if it so pleases them. In short, they seem to do almost whatever they like, and doubtless their small size and apparent insignificance has proved their chief protection. "It is only a poor fly!" one often hears exclaimed, but when considered as it should be, it is an unmitigated nuisance and a dangerous pest. We should at least do our best to keep our homes clear of them, although we cannot exterminate them altogether.

A. G. YALDWYN,
Montreux, October 26, 1901. Lt.-Colonel, D.S.O.

SQUIRRELS VIEWED AND INTERVIEWED.

TO a few of us this opening year of the new century will be memorable for its fine mornings. It is a long time since the sun was so busy before breakfast. We have had nearly two hundred and fifty clear, sunshiny mornings since the beginning of January. About thirty of these have collapsed before ten o'clock; but the rest have lived on into brilliant dayhood, and forced the year's recorded hours of sunshine many degrees above the average.

It would not be easy to express in exact terms the effect of all this upon the sum-total of the year's life; though I think it may be safely said that the joy of living has been greatly increased. Smiling faces are always plentiful on bright, warm days; but perhaps the most convincing evidence of the sun's joy-producing power comes from our English woods and hedgerows, which this year have simply teemed with joyous life. But where are these squirrels?

In the spring of the present year I read a delightful little volume, "Billy and Hans," by the late Mr. W. J. Stillman, and at the time, much as I loved the squirrel, I thought Mr. Stillman rather exaggerated the little fellow's merits. Since then, however, I have seen the pretty creature so often and under such attractive conditions, that my love for him has deepened, and I have become a staunch disciple of Billy's kind master. Within five miles of the Crystal Palace, and about

midway between Bromley and Croydon, there is a charming wood (at West Wickham) in which squirrels may be seen on any morning fine enough for a spin on the bicycle by those who can get up early. That, at any rate, is my experience, and I have been there twice a week before sunrise since the beginning of May (till October). Not once has little Shadow-Tail disappointed me. Indeed, on several occasions I have seen three while sauntering through the wood, and without leaving the bridle-path.

The following brief extracts from my note-book may be interesting to lovers of Nature and her ways :—

(1) "Saturday, July 6. Rose at three, and got into the wood at four. I was walking as usual beside my bike in the bridle-path. About half-way through the wood, on the right side of the path, there are three oaks, the first small, the other two shapely, well-grown trees. Between and beyond these trees there is an open clearing. Just as I came up a squirrel was bounding across this, near the third tree. The little fellow saw me, and whisked round the back of the tree in a moment. I pulled up directly, lest I should frighten him back into the wood, and hoped he would climb into the oak and exhibit himself. After waiting two or three minutes, listening and looking for him in vain, I moved quietly past and watched on the other side of the tree. There was no sign of the little runaway, and I thought he must have gone back to the wood. I had been so careful not to offend him that I felt disappointed. Then I looked into the hazels near and wondered whether he had been foolish enough to take refuge among them. Finally, I went back to my first position between the two large trees and looked longingly up into number three again.

"Now, I thought, the young scamp has dished me, but he may be somewhere among the branches at the top, hidden by the leaves. If so, he is very still, and I will wait till he moves. Presently a small object caught my eye. At the top of the trunk, in a hollow between two thick branches, I saw something like a short stump, about the size of a man's thumb. At first I thought a small branch had been broken off short; but would a branch grow out of a hollow like that? Then I wondered whether a branch had fallen from above and got caught in the foliage underneath, its broken end showing just above the fork. I watched this turned-up thumb for some minutes before I could catch any sign of life. At last there was a slight, quick movement in the fork. I had not stirred foot, hand or head, or even eyelid, though a hungry fly had been feasting on the back of my hand all the while. To bring matters to a point I suddenly shook my hand, and then realised that the rascal had been watching me all this time, for that little stump vanished as if by magic. I was now sure that he was in the tree, and that I had only to wait. I did wait for nearly five minutes, but the little fellow would not show himself. Where could he be? I glided

gently past the tree again, looked up, and was rewarded by a good side-view of him, standing right across another fork. His head was partly hidden, but his pretty, pouting body filled up the angle nicely, and his tail swept out behind a prong of the fork, the lower half of it hanging down like a spray of dry bracken. The front part of his head I could not see, but his left ear was visible, and was listening most intently. Once or twice I saw it twitch, just as a horse's does when disturbed by a fly. I feel perfectly sure he still thought me on the other side of the tree, for presently he ran up nearly to the top, waited a bit, and then took a pretty little canter along a branch that extended half-way across the open space, feeling certain, at last, that I had gone. He now enjoyed himself without reserve.

"How he darted about, visiting all the branches of the two large trees, stopping every now and then to sit up and eat something, not acorns, for he seemed to find his breakfast close to the large stems, not among the leaves. I believe he bit off young shoots, ate the tips—as we do asparagus—and threw down the stalks. I watched the pretty creature till five o'clock, then walked gently on, feasting my eyes and ears upon treasures that are hidden from none but the blind and deaf—and those who get up late!"

(2) "Saturday, September 21. In the wood this morning soon after six. While walking beside the fir plantation I saw a squirrel cross the path, and then in a great fright hurry back again. Feeling sure I should be rewarded if I stopped, I put my bike against the fence and stood perfectly still, expecting to see the little fellow reappear out of the bracken and run up a pine tree. Still as a stone I stood and watched for some minutes, and then concluded that he was somewhere among the ferns—perhaps watching me! Thinking he had probably seen enough of me, I moved towards the fence to take hold of my bike, when all at once a passionate 'chut, chut' sounded just over my head, like steam forced through a valve. By the way, the squirrel is no linguist. His little soul has been busy solving the problems of shape and speed, while that of speech has been sadly neglected. He seems to have no idea of a vowel, and treats the word 'chut' as if it were an acorn. He certainly kept the kernel, and threw only the husk at me! There he was about four yards above me on a bare pine branch, letting off steam and writhing with fury or fright. He had not entered the bracken after all, but slipped up the first tree he could find—a short, deformed specimen that must have disappointed him sorely as soon as he began to climb and looked up. He could easily have made a better choice if he had gone farther; but being there, he had been trying to make the best of it, and he succeeded till he lost his head and made that splutter. The poor little chap was bursting with excitement. His beautiful tail was bunched out like a stiff cylindrical brush, and his little body was palpitating with fear, twisted up almost

into a sitting posture. I thought if I again stood stock-still he might recover his presence of mind, and restrain that torrent of steam; but he had lost confidence in me and grew quite resentful. My heart was already relenting, and I made up my mind to step back and let him descend in peace. But now, as if in scorn of such an offer, he suddenly stretched out his legs, straightened his elegant little person, and came swiftly down, like a long caterpillar, to another dry branch that ran out stiffly towards a much taller tree. When he reached the blunt end of this broken branch he took a glorious leap into the air and alighted upon the drooping skirts of a broad, feathery branch that hung from a larger tree. The branch made a graceful, sweeping curtsey, as he saluted it. (A peacock's tail makes the same waving movement when used as a horizontal rudder.) He did not seem to notice this, but scampered along towards a safer shelter. He was soon up the trunk, looked up anxiously in several directions, and then came resolutely down again to the bottom and vanished under the ferns. I hope he bears me no malice. I would not touch even the tip of his lovely tail against his will."

(3) "Saturday, September 28.—Was in the wood this morning from six till seven o'clock. Having given up all hope of seeing a squirrel, I was on the point of leaving the wood, when something suddenly stirred in the branches of a small oak near me. As there was no wind, I kept a steady eye upon the moving foliage, and in less than a minute one of my pets came into full view at the end of a small swaying branch. He took advantage of the next upward swing and bounded like a bird from one perch to another, into the nearest pine tree. And now began the most fascinating performance I have ever witnessed. At first I wondered what the little fellow was going to do; but before he had touched the trunk of the first pine I had ceased to wonder, and could only cling with my eyes to that animated arrow, weaving its way, like a live shuttle, along branch after branch, and up and down stem after stem, till my head reeled with delight. What was he after? It was not a chase: no other living creature could have led him over such a course—and a hunter does not carry his quarry on the tip of his nose! He may have been chasing the spirit of a departed brother, though I suspect that secret orders came at the rate of about six in a second from his own frolicsome fancy. He was not searching for his breakfast, or, if he was, he didn't seem to find it. At any rate, he didn't stop to eat it. Besides, his morning meal was over before I saw him. It was simply a beautiful manifestation of the joy of living.

"There was no sound of revelry, but the sight of it never took a more attractive shape. The great charm of the performance lay in the perfect naturalness of the bright little actor. I do not believe he saw me at all; for I had been standing quite still from the first, and not once did he look as if conscious of any-

thing but his own wild desire to move on. Two or three times he hesitated for the tenth of a second when he came to a trunk —did not seem quite sure whether he wanted to go up or down; but on each occasion he decided to go up, then along a branch at a higher level, and from this he always leapt to the next tree. I saw him disappear at last—after visiting about a dozen trees in four or five minutes—down a distant trunk. Once before, when I thought I had lost him, suddenly, behind some rather heavy foliage, I saw a moving figure pass from behind a fir trunk to the very end of a long branch, and then to my surprise wheel round towards me, and perch on another tree nearer the path. It was a wood pigeon; but while gliding gently through the air, and partly hidden by foliage, I had mistaken it for my little bird without wings. Cowper was right, as he generally is, when he drew attention to the bird-like movements of the squirrel."

September 12, 1901. AN EARLY BIRD.

NOTES ON THE BARBARY DOVE, COLLARED TURTLE DOVE, OR LAUGHING DOVE (TURTUR RISORIUS).

FOR many years we have had a few of these common but attractive birds here about the garden. They have perfect liberty, and usually keep close to the house, often sitting on the porch and window-sills. If the doors and windows are left open they walk in. Wounded or sickly birds and late hatched young ones are sometimes put into a large outdoor cage, and tended till strong enough to let out, but the rest are fairly hardy, and being well fed twice a day can easily stand the cold of an average east coast winter. Some of these doves have a provoking habit of disappearing now and then for an indefinite period, perhaps never to return; or, on the other hand, they may suddenly reappear months afterwards, in company with a strange dove or two, so that their numbers are apt to fluctuate a good deal. So many of these birds are kept by cottagers and others (generally caged) in this neighbourhood, that those at liberty, hearing the distant cooing of their own species, are probably tempted to stray from home, and are then perhaps caught and caged. This tendency to stray away, and perhaps return again after a time in increased or diminished numbers, has been observed in several instances at houses where these doves are kept at large. My brother, living about two miles from here, generally has some about his house and garden, and the familiar coo of this bird is sometimes heard coming from trees growing in the meadows about midway between the two houses.

Though there are here four house cats, and often two dogs about the house and garden, these and the doves are all friendly together. Cats, and especially kittens, often amuse themselves by stalking and springing at these birds; but this appears to be merely play, as I never knew one injured in this way. One dog, a Skye, who considers it his duty to drive trespassing fowls out of the garden, will, while chasing a hen, often rush right through a party of doves feeding on the ground; but the latter hardly trouble themselves to get out of his way, or take any notice of him whatever. In fact, cats and doves are often to be seen feeding together.

Our doves build on some of the trees growing about the house. A pair often select one particular horizontal branch of in ivy-covered elm which stretches across the road. Some kept at a farm about ten miles off have for years built in a large *Picea pinsapo* in the garden. These birds are great drinkers and bathers, and, like pigeons in general, seem to greatly enjoy a heavy shower. Sitting in some exposed place, they hold up one wing at a time in such a manner as to allow the rain to get underneath it. I once saw a dove drinking the dew from the twigs of a maple on which it was sitting. Last winter one was found vainly trying to bathe in a pan of water covered by a thick coat of ice. Though they will eat corn of most kinds, as well as the usual "bird seeds," such as canary, hemp, rape, &c., they seem to prefer maize to most things, notwithstanding the difficulty they have in swallowing it owing to its size. I have watched them picking up and eating the seeds of the nasturtium, and they are fond of ripe currants and elder-berries. Up to May 12, 1898, I had never suspected these birds of any liking for animal food. On that day, however, I saw a dove, which was within three yards of me, pick up and swallow a rather large earthworm which lay dead on the gravel path. I then dug up and threw to it another worm, which was also at once picked up and devoured: I should like to know whether this taste has been observed elsewhere. Their loud, musical coo heard early on a bright spring or summer morning, is a pleasing and cheerful sound.

When the wild turtle doves arrive, we often hear their soft, tremulous voice blended with that of the Barbary doves. Occasionally one of the latter is seen chasing a wild dove among the trees of the orchard and plantation, but on the whole they agree very well together, for we sometimes see one or two wild turtle-doves feeding close to the door with the tame doves, and also among the fowls at the foot of the granary steps, sharing their dole of grain. It may not be generally known that both sexes of *T. risorius* coo; but the voice of the hen bird is comparatively feeble, and entirely wanting in that full, resonant quality so conspicuous in that of the cock. The "laugh," which has given rise to the specific name is often heard just as the bird alights after a flight.

These birds are not remarkable for intelligence, and, indeed, doves and pigeons generally are in this respect far behind several other families of birds—the crows, finches and parrots in particular. But they have a curious liking for human companionship, which shows itself in various ways. If a person who feeds and tends them happens to be engaged in any gardening, carpentering, or other kind of work, one or two of the doves will often come and sit close by, or walk quietly about his feet.

A few years ago one of these birds was struck at and seized by a female sparrow-hawk. My brother, who was indoors at the time, witnessed this attack from the window, and running out, was just in time to make the hawk drop her quarry. She then made another dash at the dove, and began to make off with it in her claws, but he managed in the end to rescue it. It was a good deal injured. On another occasion some rooks were soaring and wheeling at so great a height as to appear as mere specks against the blue of the sky. One of the doves feeding close to me on the ground turned her head over to one side (as birds usually do when desirous of looking at a distant object directly above them), and seeing what she evidently took to be birds of prey of some kind, flew up at once into a thick Scots fir tree.

Blaxhall, Suffolk. G. J. Rope.

NATURAL HISTORY NOTES AND QUERIES.

Oology.—Your correspondent, "F. W. L.," in his useful hints on the above subject, advocates the taking of a single egg from a nest, on the ground that "it is cruel to take more." The greatest value of a collection of eggs is undoubtedly the intimacy with the details of bird life and habits gained at first hand by the collector, but if we are to collect on "scientific lines" we must not lose sight of the more strictly scientific object—the study of varying types of form and colouring, and the principles which govern them. The first purpose only is served by the single-egg collection, as by the cardboard and gum method of earlier days. To secure a lasting value to a collection it seems to me necessary to take *complete clutches*. An obvious case in point would be a series of cuckoo's eggs, which would be valueless unless the other eggs from each clutch were shown. At first sight it certainly seems more cruel to take a whole clutch than to deprive a bird of one or two eggs only. But I do not wish to plead "science" as an excuse for cruelty, as is sometimes done. For I believe there is much to be said in favour of taking "all or none" of a clutch. With some birds which only lay two eggs, such as the nightjar or stone curlew, it is certainly a false kindness to leave one egg and so prevent the bird laying a second full clutch. And I think the same holds good with other birds; it is better that they should bring up their full number of young a few weeks later than a smaller number at their usual time. There is also the risk of desertion to be considered when some eggs are taken. A clutch found late in the season should of course be left, as another clutch would not be laid, or the brood might be too weak for migration. Again, if a whole normal clutch is once taken, that type is represented in the collection, and *no more nests of that species need ever be disturbed*, unless the eggs present some special characteristics. I confess to many a qualm as one by one I have packed away the contents of some snug little nest, but the reward comes when the nest of the same species

is found, and with fingers no longer itching for even one specimen, the glasses are called into service instead of the egg-box, and the collecting instinct gives way to that of the field naturalist.

Cambridge. R. BULSTRODE.

Cruelty of Sparrows.—Out of five martins' nests three are occupied by sparrows. In the other two the martins were allowed to establish themselves and lay their eggs and hatch them. But the sparrows hovered over the nests. One morning we saw a hen sparrow putting her head out of one of the nests occupied by the martins, and she then deliberately pushed two of the young martins (more or less feathered) out of the nest, who fell to the ground practically killed, with their heads pecked to pieces. The parent birds flew helplessly round, unable to protect themselves against the furious onslaught of the sparrows. The sparrows do nothing but sit on the spouting above the nests until they are finished, when they attack the martins and drive them off and take possession of the nests. It seems an invariable custom here with the sparrows to eject their own young from the nest, as we find the corpses of the wretched little birds just below the nest. This year they are murdering the little martins.

Foxton, Cambs., A. M. GREENWOOD.
August 8, 1902.

A Pendant Martin's Nest.—Under the caves of a cottage here there is a martin's nest built in the usual way against the wall. This being objected to by the cottagers, a nail has been driven into the eaves close to the nest, and from it a woollen rag suspended by a string six inches long, so as to flap against the nest and scare the birds away. On this rag a pair of martins built a nest which was unfortunately wrecked by the wind. A second nest is being constructed on the rag in mid air which twists round and round like a joint of meat before a fire. I hope to have it photographed.

Market Weston, Thetford, EDMUND THOS. DAUBENY.
July, 1902

Blackbirds.—The song of these birds is usually associated with spring and not with midsummer. This year, however, in consequence probably of the unseasonable weather in May, they have sung later than I ever remember. I heard their notes all through June, not only at break of day but also in the afternoon. One sang in my garden as late as July 17.

Market Weston, Thetford, EDMUND THOS. DAUBENY.
August, 1902.

"Birds and Berries" (p. 116).—Mr. Savage thinks "that thrushes and missel thrushes only feed on the berries of the holly when hard pressed by hunger." It seems to me that missel thrushes, at all events, are very partial to these berries, and do not wait for hunger to make them eat them. There is a holly tree close to my study window which is monopolised by a missel thrush year after year. When the berries are ripe it sits on guard and drives all other birds away from its pet preserves. This goes on as long as the supply lasts.

Market Weston, Thetford. EDMUND THOS. DAUBENY.
July, 1902.

Cuckoo.—I should be glad to know if the extraordinarily late incubation of the cuckoo has been observed in other neighbourhoods. On July 24 a young cuckoo was found in a hedge sparrow's nest in my garden nearly ready to fly. On July 30 another was found, also in my garden and in a hedge sparrow's nest, apparently hatched only a few days previously; and to-day a third was brought to me in a cage, not full-grown. Unfortunately the two first have already come to an untimely end; the first found I discovered dead in the nest on August 1, apparently starved; the second and youngest bird of all has been taken by that greatest of all nuisances the marauding lad of uncertain age, who to my experience is far worse than the schoolboy, whom it *is* possible to imbue with interest in natural history while attending school. Morris gives June 26 as the latest record for the egg and August 18 as the latest off the nest, and five or six weeks

as the length of the time *on* the nest. The cuckoo arrived here at the usual time, but the wet weather of May and June seems to have interrupted nesting and prolonged it in proportion afterwards. I heard the full note of the cuckoo on July 11, and the black cap was in full song till July 28.

White Notley Vicarage, Essex, A. F. CURTIS.
August 8, 1902.

So far as my personal experience goes, I have never heard the cuckoo so late as this year. All last week we have heard him in this district, and yesterday (Sunday afternoon) we heard him constantly for many hours. This morning, waking about 3 o'clock, I heard him again for quite a quarter of an hour uninterruptedly, and he was still calling when I fell asleep again. I send you this "Nature-note" for what it is worth—probably it is not an unusual thing, but it is new to my own observation.

Winander, Station Road, Hendon, E. S. ADENEY.
July, 7, 1902.

P.S.—Supplementing my note of last week *re* cuckoo, I heard him here up to the 10th inst., but not since.

Hendon, July 13, 1902.

I am indebted to Mr. Bulman for his interesting notes in the July number (p. 138), but as regards Mr. Craig's theory that, if the cuckoo laid a clutch of eggs and built its own nest as most other birds do, it would be in a worse position than at present for perpetuating its species owing to the habit of the young cuckoo in ejecting its foster brothers or sisters, or eggs, I should like to state that I only gave Mr. Craig's opinion and not my own. I would also point out that in my article I gave particulars of the extraordinary strength of the young cuckoo, and also laid stress on the fact that there were two young cuckoos in the same nest and that not only did the strongest cuckoo eject eggs, young birds, &c., but also, successfully turned out the other young cuckoo! Thus, Mr. Bulman's opinion, that if the cuckoo laid a clutch of eggs and built a nest, the desire implanted in the young cuckoo of ejecting an egg or young bird would not be present, is somewhat discounted by the very facts which I recorded.

I have recently published a little *brochure* containing four very remarkable illustrations, reproduced from photographs taken direct from Nature, of the young cuckoo in the act of ejecting young birds, eggs, &c., with explanatory letterpress, for particulars of which I would refer readers to the Review columns, where I have no doubt the book will be duly noticed.

St. Albans, Herts, W. PERCIVAL WESTELL, M.B.O.U.
July 23, 1902.

Scops' Owl and Ring Ouzel Nesting in Hertfordshire.—I have the pleasure to record the nesting of these two species in Hertfordshire within comparatively recent years. The owl, so far as I can ascertain, has not been known to nest in the British Isles heretofore, and is a new species on the Hertfordshire list of Aves as well.

The ring ouzel we get on migration, but it has not been known to have previously nested in the county. The precise localities I omit, for obvious reasons.

St. Albans, Herts, W. PERCIVAL WESTELL, M.B.O.U.
July 23, 1902.

Nests in Odd Places.—I should like to add another instance of "nests in odd places" to those mentioned in your issue for August. In March of this year a pair of thrushes built in the fork of a small, perfectly leafless tree, near the edge of the footpath, a few yards from a large corner public-house, in a very busy thoroughfare, where electric tramcars under over-head trolley-wires are running almost continually from 5 a.m. to 11 p.m., and where it is estimated that 10,000 vehicles are passing every day. The nest was only nine feet from the ground, and it would doubtless have been speedily demolished had not a police-constable stationed near taken it under his protection, and to such good

purpose that the four young birds were hatched, reared, and fledged in safety. Police-Constable Hitchcock himself came from the country and retains a full appreciation of its attractions, and to him it was a labour of love to protect these charming song-birds.

Plymouth, JANE BUDGE.
August 5, 1902.

SELBORNE SOCIETY NOTICES.

Council Meeting.—The usual monthly meeting of the Council will be held at 20, Hanover Square, W., on Wednesday, September 10, at 5.30 p.m.

New Members.—Mrs. F. Buller Longworth, Paignton; Miss Millicent Wedmore, Sevenoaks; Mrs. Bayley, Hook; W. J. Thompson, Esq., J.P., Sevenoaks; G. Woods Wollaston, Esq., Walmer.

Donations and Subscriptions.—The Council beg to acknowledge the following donation: Miss A. E. F. Barlow, 5s; and the following subscriptions over 5s.: Capt. Jas. Cundy (1902-3), £2 2s.; G. S. F. Manton, Esq., 10s. 6d.; Herbert Gosling, Esq., 10s. 6d.; W. J. Thompson, Esq., J.P., 10s.; Rev. Henry S. Gladstone, 10s.; Mrs. F. C. Jones, 10s.; E. S. Morphew, Esq., £2 2s.; R. M. B. Otter-Barry, Esq., 10s.; Lord Avebury, £1.

On behalf of the Librarian, the Secretary begs to acknowledge with thanks a copy of "The Relation of Science to Art," from Basil W. Martin, Esq., F.Z.S.

Selborne Society Badges.—The attention of Members is called to the recognised badge of the Society. They are tastefully designed in pale and dark blue and silver, the outlines being as shown in the accompanying illustration.

They are especially useful as a means of identification between Selbornians at branch meetings, or at country Field Club Rambles.

Members desiring either form should write to the Secretary enclosing postal order.

The prices are (post paid)—Brooch, 3s. 6d.; Pin, 1s. 9d. If by registered letter 2d. extra.

FIELD CLUB RAMBLES.

July 19.—Upon this occasion the Selbornians were reinforced by members of the Hampstead Scientific Society, and the united party numbered close on thirty. Mr. J. E. Whiting acted as guide, and the full attendance must have been some consolation to him for the adverse conditions of the two previous rambles in the locality, one of which was entirely, and the other partially, spoiled by the wet. The route was over meadows from Pinner to Eastcote, and frequent were the pauses to admire the deep-set hedges, adorned here with white bryony, there with the tufted vetch, and often with woodbine, the profusion of the latter being quite a feature of the afternoon. After crossing the dusty road the woods were traversed that lead to Ruislip. Hardly a sound was heard beyond the feeble notes of belated warblers, or the voices of the visitors as, sometimes reduced to single file, they threaded the path through the oaks. Here by a ditch

Scutellaria (skull cap) was found, while not far away *Lysimachia nemorum* (wood loose-strife) showed in abundance. Noticed, too, during the day were the St. John's worts—*Hypericum pulchrum* and *H. perforatum*—plants of agrimony of large size, water pepper, dwarf red rattle, petty whin, and others. Open country was reached at Ruislip Common; it seemed a breezy stretch after the closeness of the woods, and the contrast thus afforded was not the least pleasant of the day's experiences. On the Common, grew wild thyme in large patches: delicate harebells told of the passing year, and a little heather was in bloom. Thence the return was to Northwood Station. It should be added that tea was partaken of in an orchard at Ruislip, and on its conclusion hearty thanks were accorded to Mr. Whiting for his leading.

July 26.—Threatening weather reduced the numbers of the party that met Prof. Boulger at Barnes Station; and, after the somewhat lengthy walk up Roehampton Lane, a stiff breeze greeted us on Wimbledon Common. There is, however, no piece of woodland within anything like the same distance from Charing Cross to compare with the unspoilt wildness of the south-west of the Common, and a considerable variety of trees were noticed. After tea at Kingston Vale the party returned through Richmond Park.

FORTHCOMING RAMBLES.

Sept. 6.—Hatfield and neighbourhood. Take cheap half-day return tickets, 1s. 9d. Train leaves King's Cross at 2.30 p.m. Tea at the Bull Inn, Stanborough. Guide, Mr. E. A. Nash.

Sept. 13.—Titsey Hill. Train leaves Victoria (L.B.S.C.R.) 2.30; London Bridge (L.B.S.C.R.) 2.55. Take cheap return tickets (1s. 6d.) to Woldingham. Tea at Botley Hill Cottages. Returning from Oxted. Guide, Mr. Muhlberg.

Sept. 20.—Broxbourne District. Train leaves Liverpool Street at 2.15 p.m. express to Broxbourne, arriving at 2.45 p.m. Walk *viâ* Roman Road to Goose Green. Tea at Green Man Inn about 5 p.m. Return *viâ* High Leigh and Cock Lane to Broxbourne Station. Take return tickets to Broxbourne, 2s. 6d. Guide, Mr. S. Austin.

Sept. 27.—Thames bank. Assemble at Richmond New Station at 3 p.m. Proceed to the Terrace to inspect the View, and then through the Garden to the Tow-path. Tea at Kew. Guide, Prof. Boulger.

ANSWERS TO CORRESPONDENTS.

A. B. E. L.—The insect is, I believe, *Sirex juvencus*, the larva of which lives in fir wood.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., 11, Onslow Road, Richmond, Surrey.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

No. 154. OCTOBER, 1902. Vol. XIII.

OBJECTS OF THE SOCIETY.

To preserve from unnecessary destruction such wild birds, animals, and plants as are harmless, beautiful, or rare. To discourage the wearing and use for ornament of birds and their plumage, except when the birds are killed for food or reared for their plumage. To protect places and objects of antiquarian interest or natural beauty from ill-treatment or destruction. To promote the study of natural history.

SELBORNIANA.

Sale of the Wakes.—The fact that Gilbert White's house is for sale having found its way into the daily press, it may be well to state that the Council have the matter under due consideration. Meanwhile we have received the following letter from Mr. R. Hedger Wallace, one of the prime movers in the recent most successful Nature-study Exhibition :—

"As Gilbert White's house and grounds are now in the market, and the Selborne Society are endeavouring, I believe, to have it purchased and retained as a public trust, may I suggest that no better place could be found for a school—normal or otherwise—of 'Nature-study,' and that it could be made the centre for English Nature-study teaching.

"I have seen it suggested that a museum be placed in Gilbert White's old home, but collections of dead remains, animal and vegetable, are, I take it, entirely foreign to the spirit of this old naturalist's work and teaching. A museum of Personalia is, of course, a different thing, and has a value which is not utilitarian.

"What, however, could well be housed at Selborne, and would assist the Nature-study movement, is a library—say the 'Gilbert White Memorial Library'—which would illustrate what has been and is the influence of his 'teaching over the wide world—especially the English-speaking world. The

number of such books is by no means small, and when once the library is formed, if it be kept up to date, it would be of very great service indeed to all interested in Nature-lore and Nature-studies. The founding of a school for 'Nature-study' would, after all, I think, be the best practical purpose (along with the library) to which this famous Nature student's old home could be put as public property. It should be a school intended for all 'who feel that their knowledge of Nature is inadequate to their needs'—a place where the study of Nature would be fostered and not the study of Natural Science.

"If we agree as to the practical ends to be served, an appeal to English-speaking peoples for contributions is more likely to prove successful than if such an appeal rested only on sentiment."

The Nail-head Decoration of Selborne Houses.—Mr. F. Gibbons, of Stourbridge, writes as follows :—

"While on a recent visit to Selborne I was much interested to find some of the old houses still retaining the little bits of stone stuck into the mortar-joints of the walls, which Gilbert White describes as resembling nail heads, and which, he says, occasioned strangers to ask 'whether we fastened our walls together with tenpenny nails." These little bits of stone had been chipped purposely to resemble nail-heads, and, being of a substance containing a large percentage of iron, which had partially rusted, the resemblance was very striking, especially as the stone of which the walls are built was of a light colour and contrasted strongly with the 'nail heads.'

"It is surprising that these little bits of Wolmer Forest stone have stuck to the mortar joints all these years and look as regular, in many cases, as when first put in, thus displaying the excellence of workmanship and material of the old days, when so much was left to the skill and integrity of the local workmen.

"In many cases the houses have been whitewashed, and this peculiarity has then to be looked closely into to discover. I could not help thinking that there must have been a reason for thus imitating the appearance of nails. Was not the original intention to make the house look as though built of wood, with weather-boards nailed on, and is it not a survival of the time when cottages were first built of stone, and they wished to make them look somewhat like their old wooden ones? I think this theory is much more likely to be right than that it was merely done 'from a notion of rendering their work more elegant.' It would be very interesting to know if this peculiar way of ornamenting houses was in existence in any other parts of the country. The custom seems to have dropped just about the time White wrote, for you see it in none but the old houses."

The practice to which Mr. Gibbons refers is not confined to Hampshire, but obtains also in Surrey and Sussex at least, the stone commonly used for the "nails" being" the ironstone from the Hastings or from the Lower Greensand series. We do not think the practice has ceased, and have often heard the strictly utilitarian reason of checking the disintegrating action of frost on the mortar, assigned for it.

Cheddar Cliffs.—We have received the following from Mr. Arthur A. Kidson, of King Edward VI.'s School, Repton :—

"I have lately revisited the cliffs at Cheddar. I regret to find that a quarry has been opened in the most beautiful part. A stone-crusher is at work, and the roadside is disfigured by heaps of *débris*. At present comparatively little damage has been done, but immediate action is necessary unless the gorge is permanently to be disfigured.

"I do not know to whom the place belongs, nor whether it can be saved, but at least an outcry can be raised and the owner's name can be made public."

We can fully endorse all that Mr. Kidson says, having very recently visited the spot. The quarry, which, we find, has been

in operation for several years, is a large one, and mars the very grandest bend in the entire gorge, both by the artificial exposure of raw edges of rock and by the din of the stone-crusher, that destroys all the natural quiet of this lovely spot. No doubt, if now abandoned, kindly Nature would soon heal over this unsightly scar, bleaching the iron-stains from the stone and draping it with clinging bushes and herbage. There are assuredly plenty of other less beautiful spots where Mendip limestone can be quarried; but we suspect that the excellent road down Cheddar gorge to the railway was one of the determining causes of this act of vandalism. It seems to us one of the many burdens suitable for the willing but insufficiently supported shoulders of our friends of the National Trust.

Bird Protection in India.—The Simla correspondent of the *Daily Mail*, writing under date September 19, says:—

"The Government of India has to-day issued an official announcement prohibiting all further export of wild-bird skins and feathers, of which enormous quantities have hitherto been sent to England for use in trimming ladies' hats."

To this our contemporary adds this comment:—

"India exported during the trade year 1900-01, £9,029 worth of feathers and £1,148,155 worth of skins, the latter not, of course, all bird-skins.

"That the agitation against the inhumanity of the trade has taken effect is shown by the facts that in the year 1896-97 the value of the feather export was £370,990, and that in the year 1897-98 the value of the skin export was £6,935,320."

Helix Pomatia.—Miss Woodd, of "Glenthorne," Eastbourne, asks us to announce that she has specimens of this edible snail for sale, price 1s. for two, carriage paid.

The Canterbury Congress of the South-Eastern Union of Scientific Societies.—The Council have received the following Report from their delegate, Mr. J. L. Otter:—

"It was a great pleasure to me to represent the Selborne Society at the Congress at Canterbury. The Congress seemed to me quite successful. A matter for regret was the small attendance at the address of the President, as it was of exceptional interest. Dr. Hutchinson, who took leprosy for his subject, was listened to with close attention, and his exposition of the theory that the source of the disease is exclusively in imperfectly cured fish, was a good deal more than plausible.

"The Council will be glad to hear that the Selbornian subject of the preservation of our native flora stirred a genuine interest, as was shown by the discussion which followed the reading of the papers. Both Professor Boulger's and Mr. Martin's papers were appreciated, and the only division of opinion was with reference to ways and means, especially legislative. Mr. Merrifield, who was present, and with whom I had some conversation afterwards, thinks that a legislative protective measure of limited scope might be usefully passed. His opinion is valuable, as he is Clerk of the Peace for Sussex, and Clerk of the Sussex County Council, as well as a field naturalist. I hope that Mr. Boulger's and Mr. Martin's papers may be printed in Nature Notes, or, as the space is limited, an epitome at any rate. Some of us were a little concerned to see in the exhibition-room specimens of *Orchis militaris*, *O. fusca*, and of a species of *Cephalanthera* (I forget now which), the last being taken up by the roots. These are, to the experience of most, rare species; but as Kent is in localities rich in species elsewhere absent or rare, no harm may have been done."

THE PRESERVATION OF OUR INDIGENOUS FLORA; ITS NECESSITY, AND THE MEANS OF ACCOMPLISHING IT.

[*Reprinted, by permission, from the "South-Eastern Naturalist,"* 1902.]

VARIOUS causes contribute to endanger the continued existence of many of the most beautiful and interesting species of wild plants in this country. Some of these are inevitable, and, however much their effects may be deplored, can only be endured: others both can and should be checked. In the former class I will mention, in the order of what I believe to be their scale of importance—drainage, improved farming and the increased area covered by buildings; in the latter, the needless deruralising of rural districts, smoke, trade-collectors, and the excesses of tourists and of botanists.

Within the last two centuries a very large area of land in this country, especially but not exclusively in what is known as the Fens, has by drainage been converted into cultivable land. Though still traversed by ditches, the habitat of an interesting aquatic flora, this land has largely lost its bog-plants, which include many species as valued by the botanist as are the insects which fed upon them by the entomologist.

One of the most instructive branches of botanical study is that of the migrations of "weeds of cultivation," which formed the main topic of the paper communicated to our last Congress by Mr. Dunn. Most of these cornfield weeds are annual herbs introduced with foreign seeds, often because their seeds being smaller than those of our cultivated crops escape in a badly conducted process of cleaning. Their name of "weeds" implies, alas, that they are "plants in the wrong place"; and the necessary care of the modern agriculturist to secure his very dubious profits means that the beautiful *Lychnis Githago*, *Centaurea Cyanus*, and others are not as common now as they were thirty years ago, and even poppies are, perhaps, more confined to railway embankments and other uncultivated margins of cultivated ground.

We can hardly expect to-day to find the rare *Cyperus* that grew on Walham Green a generation back, to say nothing of such plants as *Butomus umbellatus*, *Lathyrus Nissolia*, or *Sagittaria*, which grew in Battersea Fields in 1840, or of several interesting species recorded in the eighteenth century from Tothill Fields, Westminster, near the site of the new Catholic cathedral; whilst it was presumably the needs of surrounding buildings that caused the Metropolitan Board of Works to desiccate with a main drain the locality where thirty years ago I used to study *Drosera* on Hampstead Heath. Unintentionally also, no doubt, an eminent Royal Academician pitched upon the sole locality over a wide district for *Herminium*

Monorchis as the site for his country house on the North Downs. But if such causes of loss, which may be only local or may prove to be national, are inevitable in our over-peopled country, others most certainly are not so.

A recent measure for decentralising our local government seems to have created the necessity for some means of expending rates. The lighting of our country lanes by gas may be desirable; but I fail to see the necessity for the replacement of the turf-edging of our footpaths by stone or cement copings, the destruction of many a roadside strip of grass and flowers where the width of the roadway exceeds the requirements of traffic, and the wholesale plastering over of our hedgebanks with the mud laboriously excavated from our now formalised roadside ditches. All this, no doubt, provides employment and raises the rates, it may not have exterminated many species, but it is destroying the entire beauty of our country roads.

In 1882 the late Professor Paley published a long and interesting list of the flowering plants then found by him on Barnes Common. Barnes Common is still an open space, protected by a body of conservators from all depredators but golf-players, but I very much doubt if *Teesdalia nudicaulis* and some others among the species found by Paley in 1882 can be found there now. The Common is surrounded by houses and railways and traversed by well-drained roads, and it is exposed to an ever-increasing volume of smoke from Putney, Hammersmith, and the rest of London. Some years ago Dr. Alfred Russel Wallace expressed to me the fear that London smoke was killing the junipers on the Surrey hills as it has already all but demolished the lichen-flora both of Epping Forest and of Kew Gardens. This destructive agency could at least be checked if even existing legislation were enforced.

We must all rejoice in the vastly-increased appreciation of the beauties of the plant-world by those "in populous city pent," and in the well-meant, but often misdirected, efforts of the suburban amateur gardener. These have, however, created a demand which has had, and is having, truly deplorable results. The beautiful sea-holly, loosely rooted on our sandy or shingly shores, has been torn up wholesale by the roots to satisfy the artistic tastes of the London street buyer, and has now disappeared from several of its former localities. As Darwin's work on "Insectivorous Plants" caused *Drosera rotundifolia* to be for a short time offered for sale in the streets of the City; so it may have been his work on orchids that spurred the suburban gardener to the ambitious, but almost certainly futile, effort to cultivate our native representatives of that remarkable group. Even at Kew these species constantly die out and require to be renewed. Fortunately a wide-spread idea that orchids must have spotted leaves may have protected many of our rarer

species. The primrose and the male fern are more tolerant of London cultivation, though in its murky atmosphere and gas-saturated soil they can hardly be said to flourish, and, rather than increase, generally require frequent renewal. Thus, apart from, and antecedent to, all foolish and error-based political symbolism, the spring-tide glories of pale clustering blossoms and unrolling fronds have long led to a wholesale rooting-up of these species in the neighbourhood, not only of London, but also of our other large cities, by dealers who find it cheaper to steal their wares ready grown. The hedgerows round Merstham and Horley, in Surrey, only a few years ago used to be filled with primroses, but travelling past these places—about twenty miles from the metropolis—this spring I did not see one. It is, in fact, almost wholly in strictly-watched game-preserves that the primrose survives anywhere near London. The case of our ferns is, however, even more serious, since there are no specific limits to the ambitions of that amateur gardener, and consequently the trade collector greedily tears up anything besides *Filix-mas*—except, perhaps, bracken—in the hopes of a higher price. I have seen in less than fifty years the disappearance of the English maiden-hair (*Asplenium Trichomanes*) and the harts-tongue from much at least of the country round London; and now-a-days cheap and fast railway accommodation enables the depredators to extend the field of their operations to the more prolific, because moister, regions of the West of England. It is true that the fern wealth of Devon, Hereford or West Gloucester could better survive such depredations than our south-eastern area, which is naturally less favourable to fern growth; but this is only a question of degree and of time, and it must be borne in mind that the men who range so far afield from London as the Devonshire lanes look to recoup themselves for their railway fares by the wholesale scale of their operations. In these cases, moreover, the actual collectors are merely employés of Covent Garden dealers. When we read of three men and a horse and trap carting away ten sacks of ferns each week for three weeks in succession, we can understand that a county that depends largely on the attractions of its fern-grown lanes for the tourist is led to take action in its own defence. In the Lake district and elsewhere men who, in some cases at least, do not cultivate ferns, constantly advertise that they are prepared to supply at a small price collections of different native species.

There would seem at first sight little harm in a tourist taking home a root as a souvenir of his holiday, which he hopes he may succeed in growing in his garden. Unfortunately, however, the tourist has often learnt from the local guide-book what is the special rarity of the district, and the greed of possession (regardless of the probable difficulty of cultivation and of the fact that mere rarity makes a plant neither more beautiful nor more instructive) leads him to carry away not one but many roots, or to buy from ignorant and reckless peasant-collectors

until such a plant as the Edelweiss may be in imminent danger of extermination.

Similarly thoughtless selfishness on the part of the botanist, coupled with greater knowledge of what is rare, has led to culpably wholesale collecting, though not often—I think—in England. Mr. E. M. Holmes has mentioned how, when once walking over Ballard Down, near Swanage, he saw six plants of *Orchis ustulata*, and on his return six holes in the turf. *Orchis ustulata* does not, I believe, now occur in that district. When collecting in foreign countries botanists seem often to have been actuated by the mere trade instincts of the professional dealer. In their case, however, more harm is, I think, often done by mere want of thought, as in the publication of detailed descriptions of the whereabouts of some rarity, thus guiding unscrupulous persons to the spot. Whilst, moreover, to one already familiar with all the commoner species a rare plant is an important fresh object of study, he may forget that to the beginner the more abundant forms are every whit as instructive.

Such being briefly an outline of my view of the dangers in which our more beautiful and interesting plants are placed, I turn to the various possible remedies. I propose dealing with these under the heads of concealment, the cultivation of wild forms, reintroductions, suasion and legal protection, whether by existing laws or by fresh legislation.

I am strongly of opinion that it is inadvisable to publish in local Floras localities for rarities more precisely indicated than by the name of the parish or district in quite general terms. This, with oral tradition of a select—very select—few will amply suffice to prevent any locality being lost. My friend, Father H. P. Reader, an excellent Dominican botanist, who rediscovered that rare orchid, *Cephalanthera rubra*, at Woodchester, in Gloucestershire, adopted a wise precaution in showing the locality to the late Sir William Guise, president of the Cotteswold Field Club, a grower of rare plants. He led him by many circuitous paths through the woods and took him back by another route so that the old gentleman, though he saw the plant growing, was not likely to find it again. Another plant-lover in the same district, named Atkins, whose name is well-known to Cyclamen-growers, adopted another expedient. A neighbour-collector, named Wintle, remarked to him that some of the less common plants of the neighbourhood—bee-orchids, I think—seemed to be suffering from the wholesale attacks of some new enemy, whether bird or slug he did not know, all their flowering shoots being nipped off. "Oh," said Atkins, "I did that to prevent you finding them." A brother-in-law of mine adopted the same practice on the North Downs; but, however advisable it may be in the case of bulbous or rhizomatous plants, which, in the good soil and favourable conditions of their native haunts reproduce themselves freely by "cloves," or other vegetative methods, and are therefore independent of flower

and seed production, this is, I think, likely to be disastrous in the case of orchids, since our terrestrial members of that group only produce one fresh tubercle yearly to replace the one exhausted by flowering and fruiting, and there is some danger that, failing any seeding, a mischance to the one root, such as being eaten by field mice, parched by drought or rotted by stagnant water, might prove fatal to the species in that locality.

Much good may, I think, be done by the cultivation of rare native plants in botanical gardens, so that hawkers, collectors, or tourists seeking souvenirs may, for a small sum, have cut or growing specimens without endangering the continuance of the rarity in its native habitat. This has been most successfully done by M. Henri Correvon at Geneva, especially in the case of Edelweiss, and by his friendly imitators at various gardens in Italy and the Tyrol. Mr. Cochrane of Catford Bridge, has started a garden there on the same principle as M. Correvon's, and as he only asks for 100 annual subscribers of 5s. each I hope he will receive every encouragement. At the same time I have little doubt that Messrs. Backhouse of York, to whom teachers of botany are so much indebted for their recently established scientific supply department, would undertake similar work for the north of England. It might, I think, be desirable to establish similar small gardens in Scotland, especially for such rarities as those of Ben Lawers, in the extreme west of England for the many treasures of Cornwall, and in the Channel Islands for those peculiar to that group. The private amateur gardener, on the other hand, especially when without any special facilities, had better entirely deny himself the very small satisfaction of attempting to grow rare British plants of wild origin. If he requires these species at all let him get cultivated specimens through Mr. Cochrane, Messrs. Backhouse, or some such course.

The late Mrs. Ewing, whose charming story, "Mary's Meadow" originated a short-lived Parkinson Society, advocated the deliberate introduction of new, or reintroduction of lost old, species in wild spots; and many botanists have in the past done this more or less deliberately. Sherard at Eltham, and Borror at Henfield, were both the originators of such falsification of our local botanical geography. If such introductions are done secretly and not placed on record, they are, I consider, deplorable, since they may vitiate many important conclusions as to distribution: and even if carried out with great care and duly recorded they are open to objection, since it may very well happen that the form reintroduced may not be exactly the same as that previously in existence.

Much may undoubtedly be done, and is being done, by mere example, teaching and moral suasion. Teachers should inculcate a respect for even the commonest beauties of our fields and hedges, teaching children not to pick even buttercups and daisies, merely to throw them away again almost immediately in an

unsightly litter. Teachers of field botany may well demonstrate mainly with common species, point out how much may be learnt of any plant without uprooting it, and abstain from taking large classes of children, or of students who are not well under control, to the habitats of rarities. With regard to the sale of wild plants in our large towns, it must be borne in mind that it is the demand that creates the supply, that if there were no purchasers there would be no dealers, if there were no receivers there would be no thieves.

It may become necessary to deprecate, as Mr. Hudson has done in the case of birds, the formation of private collections.

Meanwhile, I would urge upon all societies here represented that they should add to the summary of their "objects" in their Rules some such clause as that which the Hertfordshire Natural History Society and Field Club has adopted. After stating four objects, as the investigation of the Natural History of the country, the publication of the results of such work, the dissemination of information and the formation of a library and museum, they add as a fifth object, "the discouragement of the practice of removing rare plants from the localities of which they are characteristic, and of exterminating rare birds, fish and other animals."

Some of you may have seen a letter which I wrote some months ago discussing the possibility of legal action against depredators under the existing laws, or the desirability of new legislation. Lord Clifford, the chairman of the United Devon Association, kindly pointed out that, in that letter, I understated the possibilities of the existing law, and the recent successful action of his Association has demonstrated that this was so. According to the old, narrow interpretation of the law of trespass, it was necessary to prove damage to fences or cultivated crops, wild plants, such as uncultivated mushrooms, blackberries, or wild ferns or flowers, not being protected; but Lord Clifford pointed out that, if it can be shown that the articles removed have a market value, it is not necessary to show that they are cultivuted. Accordingly, in February last, the Wonford magistrates at Exeter sentenced two men to two months' and six weeks' hard labour respectively for damaging ground to the value of £5 and removing £8 to £10 worth of fern-roots. The Western Counties' Ferns and Wild Flowers' Preservation Committee of the United Devon Association, besides advertising appeals in the local papers, have now issued a poster, "to all whom it may concern," on which these "convictions" and the names of "the Devon County Council" and "Lord Clifford" appear in conspicuous type, calling attention to the "illegal removal of roots of ferns, plants and wild flowers from the lanes, hedges and fields of Devonshire, whereby many beautiful spots in the county have become denuded of their natural charms, to the detriment and disfigurement of the property," and giving "notice that all offenders are liable to prosecution."

One of the main difficulties here, as also to a great extent in the case of the Wild Birds Protection Act, is to get the occupiers of land to prosecute. In Devonshire the energetic Association has roused their county to a sense of the danger to their pockets by the simple syllogism that the well-being of the county depends upon tourists; tourists come to see the natural beauties of the county, and, therefore, with the destruction of these beauties the prosperity of every hotel or town is imperilled. There, too, the hearty co-operation not only of the magistracy but also of the police has been secured. It may prove difficult to rouse this sense of danger or to secure this co-operation elsewhere.

The attention of Lord Avebury, President of the Selborne Society, having been directed to the matter, opinions were collected as to the desirability or practicability of fresh legislation on the subject. Did we follow the lead of Switzerland and Italy as to their rarer alpine plants, this would mean the scheduling of species—in which the Wild Birds Act affords a precedent which is almost tantamount to a warning how not to do it. Magistrates would, I think, be reluctant to convict a man for gathering, say, *Thlaspi perfoliatum* or *Gladiolus illyricus* if he protested that he thought that the one was chickweed, or that he was gathering the other as *Digitalis* for the herb-doctors.

A more practical suggestion, I think, is that which I have received from Mrs. Lemon, the Hon. Secretary of the Society for the Protection of Birds, which is that we might have protected areas—areas in which all plants might be protected—and that those properties which are in the hands of the National Trust might be the first to be so declared. This seems to me to be quite feasible, whilst, as the National Trust estates are at present but small, I would suggest that some landowners might, by notices, make their estates equally protected areas, merely, that is, announcing their intention—under the existing law—to prosecute depredators.

Any fresh legislation would seem to me, therefore, to be only a little less unnecessary than it would be difficult.

G. S. Boulger, F.L.S.

PROTECTION AND PRESERVATION OF PLANTS.

[Reprinted, by permission, from the "South-Eastern Naturalist," 1902.]

IT will be recognised on all hands that it is inevitable in the course of progress of any civilised and settled country that, unless special steps are taken to prevent it, extermination must await, either by accident or by deliberation, those plants which are less easily adaptable to any new environment into which they are thrown. The sole reason

of such extermination, or, if not extermination, of the thinning of the numbers of certain species of plants, and at any rate of their local extermination, lies at the door of an increased population. Every other cause which may be assigned as part reason of the extermination of certain species of our native flora, is simply itself the result of necessities forced upon the community by reason of the numbers of such community. An increased population must be housed, and so estates are cut up. Lands are drained, lakes and ponds of great age are filled up, rivers are embanked, and landscape gardening takes the place of wild woodland. All these follow in the wake of the requirements of a rapidly-increasing population. And one cause of the disappearance locally of many wild flowers, which has not yet, so far as I am aware, been recognised, but which does not now act to the same extent as formerly, is the policy which up to thirty or forty years ago encouraged landowners, and owners of common rights over waste lands of manors, to make wholesale enclosures of such lands, with the intention, of course, that the land enclosed should be put under cultivation, and so assist in augmenting the corn supply of the nation, at a time when the importation of corn was highly taxed. We know now that much of the enclosed land was never put under crops, and that private greed had much to do with many important enclosures; but, at the same time, even if we estimate that three-fourths of legally-enclosed land only was put under crops, we have some 3¼ millions of acres of more or less virgin land ploughed up between 1709 and 1809, during which period, on the authority of Sir Robert Hunter, no less than 4,770,890 acres of common lands were enclosed under Acts of Parliament. It will be admitted, I think, that this policy must have resulted in the disappearance locally of many a representative of Britain's native flora, if not in some cases complete extermination; but the latter it would be difficult to actually prove at the present time.

The subject now under consideration is necessarily treated from a different point of view, according as we take a purely botanical and scientific standpoint, or regard it from the point of view of those who are not botanists, yet who lament the disappearance, from old and accustomed haunts, of plants which are not rare when the whole country is concerned, but which have yet come to be rare locally. So far as the rarer plants are concerned, the disappearance of such is regretted only by the purely scientific, and it must be admitted that their own predecessors are the very people who have been mainly instrumental, by their own selfishness, in bringing about the extermination which all botanists now, almost without exception, so greatly lament. Nowadays, when a botanist has made a discovery, does he tell you exactly where he happened upon it? Not a bit of it. He cannot even trust his own species, and in this he acts wisely, and the plant he has discovered has a chance

of continuing and propagating. Never was struggle for existence so keen as now, when so-called lovers of Nature peer into copse and hedgerow to pluck the earliest blossom to appear; and he who has lit upon a rarity knows better than to publish abroad the exact locality where he has found it; but, putting aside rarities, and considering now the many common wild flowers which can be met with everywhere, what security have we that these are not fast travelling on the road which will lead them into the ranks of those which are already scheduled "rare"? It is in our keeping that we, whose minds are at last alive to disastrous possibilities in the future, see to it that we do all that lies in our power to remove any tendency towards this road. Enormous numbers of primroses are gathered every April, which twenty-five years ago would have attracted but little attention. Is this distinction more than counterbalanced by the fertility of the plant? Or is there a decrease in its numbers? Certain it is that it has become within man's memory extinct in many places; but such places are those that are in close proximity to the towns. Are the country districts as prolific as ever? Not only does the primrose have to provide the symbol of a political passion, but its roots are subjected to wholesale grubbing up, in order to decorate suburban back-gardens, no matter what the soil of such back gardens may be, and whether adapted or not to the growth of this copse and hedge-loving plant. But many wild flowers are subjected in the spring to immense destruction by children. Just now, one sees and could have seen during the last month and more, children returning to town laden with enormous sheaves of wild hyacinths. And yet, of the number plucked, how few ever reach the homes they were intended to beautify; how frequently, at the close of a tiring day, the children throw them away rather than trouble to carry them further. Fortunately, the bulbs are not easily removable without the assistance of a spade; perhaps for this reason they often survive, even in the close vicinity of large towns. But the same children, who lack the training which should have taught them to protect and revere nature, will care little whether the plants they pluck by the handfuls are such as will suffer by their treatment, or whether they are such as will be uprooted or injured by thoughtless tugging at the plant in order to procure the blossom.

In discussing the question of protecting plants by Act of Parliament, one must remember that Parliament's object in passing any new law is not that of making offenders or criminals. If you attempt to fine, for instance, all who interfere with plants in Kent except a few scheduled species, such as the daisy, dandelion and buttercup, you will make hundreds punishable, for instance, who will not know any difference, except size, between *Bellis perennis* and *Chrysanthemum leucanthemum*. In spite of text-books and other easily-understood works, the popular ignorance of wild flowers is really appalling. Ignorance in

ornithology is perhaps excusable, but the wild plants which grow at the feet of everybody, and which could not fly away even if they had the will to do so, should at least be familiar.

The protection of birds is on a fairly satisfactory basis, because the bird-fanciers, the principal offenders against a Protection Order, know their birds, and do not commit an offence in ignorance. In the case of plants, to see a flower is at once, with most people, to pick it. No particular flower is sought, but that which comes to hand is wantonly destroyed, and nine times out of ten no one recognises what species it may be. A builder laying out a new estate would incur tremendous penalties, for he, more deliberately than any other, perhaps, destroys the habitats of many plants. Then think of the children who would offend under any kind of protective law. If Nature knowledge is to increase and be more widely diffused, some encouragement must be given to children to make their own collections. But apart from this, would any legislature be likely to prevent them enjoying that great delight of children's days —the rambling after wild flowers?

Direct legislative protection is, if not impossible, at least inadvisable. What is most needed for the future is that the children should be properly educated. Encourage their taste for botany, but curb the natural propensity for destruction. Show them that to love the plants should necessarily mean also to protect them. Teach them that where there are but two specimens of a plant, both should remain unplucked, and that where there are a dozen, one or even two may be taken. Teach them that physical strength, which is the standard by which all children calculate the worth of their fellows, is more valiantly used in protecting what is helpless, than in assisting in its eradication.

As the remedy then for the future, in the protection of plants, my answer is plain and simple, educate the children. But what can we do to remedy the faults of the past? From a strictly scientific point of view, it is wrong to reintroduce lost species into a locality. In that case, a locality which has lost a species must never more possess it. I must confess the principle has no weight with me, and I must also confess to thinking that a good deal more of this introduction and re-introduction goes on than most scientific folk think. To re-introduce a species is in no way upsetting the balance of Nature, especially when its local extinction has been the result of an artificial process, such as draining or building, and it seems to me to be the right thing to do to reintroduce, where extinction has been the result of a process which is not one of Nature's. Those who oppose reintroduction must remember that birds and small mammals are likely to introduce species to a spot, and those birds and mammals may be actually local introductions themselves, so that, though in this case, the introduction may be a natural process, yet it only results through a disturbance of Nature's arrangements in higher animal life.

In the Department of the Savoy, certain regulations were in March last put into force, having in view the protection of Alpine plants. In the list of plants mentioned, the grubbing up of which is prohibited, we find the edelweiss, cyclamen and rhododendron. I am indebted to the Prefect of the Savoy for a copy of the public notice. This is rather too lengthy now to read, but I suggest it should be printed in the *Transactions*.

Considérant que, dans une partie de ce département, il a été constaté des déprédations sérieuses de certaines plantes qui sont dans les Alpes à l'état de plantes rares; qu'il y a urgence de réagir contre cet état de choses:

Arrête:

Article premier.—La cueillette, avec arrachage des racines, des plantes alpines telles que l'Edelweiss, le Génépis, le Cyclamen, le Rhododendron, le Sabot de la Vierge, le Panicant des Alpes (Reine des Alpes ou Chardon bleu), la Gentiane, le Millepertuis ou Vulnéraire, la Fougère à feuilles persistantes, &c., est interdite dans les bois, forêts, prairies et pâturages alpestres non soumis au régime forestier. (Cette nomenclature de plantes alpine est indicative et non limitative.)

En ce qui concerne les bois, forêts et pâturages, gérés par l'administration des Forêts, l'arrachage de toutes espèces de plantes est réglemneté par les ordonnances du 1er août 1827 (art. 169) et 4 décembre 1844 (art. 2).

Art. 2.—Le transport, le colportage et la vente des plantes alpines avec leurs racines sont formellement interdits.

Art. 3.—La constatation des contraventions aux prescriptions du présent arrêté sera faite par tous agents de la force publique.

Art. 4.—MM. les Maires, la Gendarmerie, les Commissaires de police, les Gardes champêtres et les Gardes forestiers sont chargé de l'exécution du présent arrêté qui sera inséré au *Recueil des actes administratifs* de la Préfecture.

Le Préfet de la Savoie,
A. du Grosriez.

The execution of these regulations is placed in the hands of the Mayors, the Gendarmerie, and the Police. If these do their duty much unnecessary destruction will be arrested.

Is this adaptable to England? Can we, by prohibiting the plucking of certain plants, really prevent it? Everything depends on a strong and energetic executive. Would our police bestir themselves, even if power were put into their hands? I have great doubts of it. Have we any districts which are comparable with Alpine districts, and which have as good a case for legislative protection as they have? It is doubtful if we have. But if there is any one such district, we should, I think, appeal first to local landowners, without going to Parliament, and obtain promises or consent to sue for trespass when it has been proved that damage to a single plant has been caused. There would be little doubt as to the

good will of landowners. They would work heartily, as a rule, with those who had this object in view.

So much for the protection of rare plants, but the landscape is being spoiled by the destruction of the thousands of common plants. This, to my mind, is the more serious matter of the two, and I have but one remedy for it, and that is—educate.

EDWARD A. MARTIN, F.G.S.

THE SCIENCE AND THE POETRY OF TREES.*

WE have in England several excellent but costly books on our trees, such as Loudon's "Arboretum" and Selby's "British Forest Trees"; but we have no such book as the handbook which Messrs. Dame and Brooks have prepared with reference to the trees of New England. Describing eighty-seven species concisely, with a few synonyms, giving their range throughout the United States and Canada, and stating their horticultural value, and—last but not least—devoting a whole page to an excellent figure, with all necessary details and dissections, from original drawings by Mrs. Elizabeth Gleason Bigelow, for every species, this valuable manual is comprised within less than 200 pages, exclusive of the plates, and is of a size and weight that render it quite pocketable. Whatever technical terms are used are explained in a glossary, and the index leaves nothing to be desired. It is somewhat unusual to give a long list of all who have given information under the heading "Botanical Authorities," and it seems strange in so complete a little book that there is no reference to the uses of the timber of the various species. One very excellent feature is the practice followed as to popular names. "Only those common names are given which are actually used in some part of New England, whether or not the same name is applied to different trees. It seems best to record what is, and not what ought to be. Common names that are the creation of botanists have been disregarded altogether."

Side by side with this truly scientific, though popular, manual, there reaches us a pleasant school "reader," containing much of "the best literature, legendary, historical, and fanciful, that has been inspired by our common trees." Written and published in America, for use in American schools, it is natural that American writers should have a preference; but many English gems find here a place. Wordsworth on the Mountain Ash, Campbell's Beech tree's petition, Ruskin on Pine trees,

* "Handbook of the Trees of New England." By Lorin L. Dame and Henry Brooks. Ginn and Co. Price 6s. 6d. net.

"Trees in Prose and Poetry." Compiled by Gertrude L. Stone and M. Grace Fickett. Ginn and Co. Price 2s.

and Tennyson's Amphion are all here; so that one is greedy for more, and resents the absence of Mrs. Browning on the Linden, and William Howitt on the Hawthorn. A list of "supplementary reading" is given, which would have been more useful if some bibliographical reference to the whereabouts of the passages had been given. The notes are unpretentious, and well chosen for school use, and a list of historical American trees is well calculated to arouse a feeling of national pride in the arboreal glories of the land; but, with the exception of that of the trunk of a Paper Birch and one or two others, the illustrations do not strike us as distinctive, attractive, or good enough for the book. Excellent type, a sensible binding, and an absence of an undue weight make the book most desirable; and we are glad to think that a very large part of it can be read and appreciated in our own schools. As the compilers truly say in their preface, "there is no result of Nature study that does so much to transform well-known scenes as a knowledge of the trees; and an important aid to this larger vision is familiarity with the thoughts of the great writers on these most majestic specimens of the plant world."

G. S. Boulger.

REVIEWS AND EXCHANGES.

The Early Life of the Young Cuckoo. By W. Percival Westell. Thomas Burleigh, 376, Strand. Price 1s. net.

With a convenient summary of our knowledge on the subject, this brochure has the great additional interest of four photographs taken direct from nature by Mr. J. Peat Millar, showing—in spite of the many unscientifically positive denials of the fact that we heard a short time ago—the young parasitic bird in the act of ejecting its foster-brother from the nest. There could hardly be a more conclusive *pièce de conviction.*

European Fungus Flora: Agaricaceæ. By George Massee, F.L.S. Duckworth and Co. Price 6s. net.

This most concise and critical work comprises in less than 250 pages descriptions of 2,750 European species, of which 1,553 are known to be British. This brevity has only been obtainable by the use of abbreviations; but these are few and self-explanatory; whilst this is the first general flora of European Agarics to be written in English. It is purely descriptive, mentioning taste and odour, but saying nothing as to distribution, beyond the indication of whether a species is, or is not, known to be British. Mr. Massee's position as a mycologist would render any technical criticism dangerous to the critic, even if this were the place for it or the width of ground covered left it possible. We presume that the Index, in which the generic names are degraded to abbreviated, bracketed and secondary position, though it seems calculated to perpetuate the provoking practice of mycologists and entomologists of referring to species by their specific names alone, is the best way of dealing with a difficult problem. Paper, type, printing and binding leave nothing to be desired, though we notice one obvious slip (on p. 245), where Fries' subgenera are spoken of as raised to specific (*sic*) rank. We wish Mr. Massee could have found room for a reference to a figure of each species; but are extremely grateful to him for the valuable work he has given us. It is an interesting testimony to the painstaking labours of British men

of science that the number of species recorded for our island is "considerably in excess of that recorded for any other European country."

The Common Spiders of the United States. By James H. Emerton. Ginn and Co. Price 6s. 6d. net.

Arachnology cannot be called a popular branch of zoology, though it has apparently more adherents in America than with us; and we are afraid that in its present form Mr. Emerton's book is hardly calculated to make it more so. Spiders belong to many distinct Orders, ten being represented in the United States, whilst the genera are far more numerous, though many of them are monotypic, at least within Mr. Emerton's area. The author has provided over five hundred excellent figures, those of the webs being very beautiful; but when he writes, "If information is sought about an unknown spider, the illustrations . . . furnish the most convenient index, as the general form and proportions of spiders and the arrangement of their eyes usually show to what family they belong," we venture to think that this suggested method of identification will prove as unreliable as it is cumbersome and unscientific. The introduction would gain by expansion, and should have been followed by something by way of a diagnostic table or summary.

Animal Forms: a Second Book of Zoology. By Drs. David S. Jordan and Harold Heath. Hirschfeld Bros. Price 6s net.

True to the modern American method of biological teaching, by which ecology precedes anatomy, Drs. Jordan and Heath follow up the excellent "Animal Life," written by the former in conjunction with Mr. Kellogg, with a companion volume treating the animal world from the anatomical point of view. A chapter on cells and protoplasm is followed by others dealing in succession with the Protozoa, Sponges, Cœlenterates, Worms, Molluscs, Arthropods, Echinoderms, Chordates, Fishes, Amphibians, Reptiles, Birds and Mammals. The wide differences between flat-worms, round-worms and segmented worms are duly noticed in a table of classification at the end of the work, while rotifers, polyzoa, brachiopods and nemertines are cautiously treated as "animals of uncertain relationships." A hundred and forty illustrations, mostly excellent, render the volume one which—with its companion work—we can heartily recommend not so much for the student of University standing as for the upper classes in our schools.

Life and Health: a Text-book of Physiology for High Schools, Academies and Normal Schools. By Albert F. Blaisdell, M.D. Ginn and Co. Price 4s 6d.

This seems to us as near perfection as we can often get in this sublunary sphere. A simply-worded account of the structure and functions of the human body, with distinct reference to the practical questions of the maintenance of health, first aid to the injured, and the care of the sick room, illustrated by numerous simple experiments, a sufficiency of diagrams and a copious glossary, we can suggest nothing to be added or subtracted. We are glad to see that in the appendix addressed to the teacher Dr. Blaisdell writes: "There should be no question at all concerning vivisection. *In no shape or form should it be allowed in any grade of our schools.*"

A Handbook of British Butterflies, being an Outline of the Distribution of all the British Butterflies, together with their Food Plants, Times of Appearance, and Favourite Places of Resort. By J. R. Charnley, F.E.S. Simpkin, Marshall and Co. Price 6d.

This little pocket-book is interleaved for notes, but it contains no descriptions to enable the young collector to identify his finds. It might be useful for the student to add these from personal study and observation.

A Glossary of Popular, Local and Old-fashioned Names of British Birds. By Charles Louis Hett. Henry Sotheran and Co. Price 1s.

This is a revised edition of the glossary appended to the writer's "Dictionary of Bird Notes," but the number of names is now more than double those in the list published in 1898, so that it now reaches nearly 3,000, or an average of

between seven and eight for each species. It would be useful if, at some future period, Mr. Hett expanded this by giving the counties or books in which each name is, or was, used, as Messrs. Britten and Holland have done in their Standard "Dictionary of Plant-names."

Field-Path Rambles (*Twelfth Series*), *comprising Routes round Lingfield, Horley and Cranleigh, and also across Surrey from Edenbridge to Cranleigh and back.* By Walker Miles. R. E. Taylor and Son. Price 2s.

Field-path Rambles, Series XXIII., comprising Routes between Margate and Herne Bay, and to Birchington, Minster, Reculver, &c. Same Author and Publisher. Price 6d.

What more can we say of Mr. Walker Miles's publications than to announce their appearance? Have we not repeatedly pointed out their purpose, and how completely they fulfil it? This we may add, that if more men and women, especially townsfolk, made themselves acquainted, by Mr. Miles's assistance, with our field-paths, there would be no lack of helpers for the Selborne Society and the Commons and Footpaths Preservation Society in securing the perpetual existence of these beauties of our land.

The Butterflies and Moths of Europe. By W. F. Kirby, F.L.S. Parts 6-10. Cassell and Co. Price 7d. net each.

This admirable work maintains its own high standard of excellence, the lates illustrating the hawk-moths being, if anything, better than those that preceded them, while Mr. Kirby's text is always just what is requisite.

Received: *The Victorian Naturalist* for June and July; *Our Animal Friends, The Animal World, The Naturalist, The Irish Naturalist, The Animals' Friend, The Humanitarian, The Naturalists' Journal*, and *The Agricultural Economist* for August and September.

NATURAL HISTORY NOTES AND QUERIES.

Symbiosis.—We have for some time kept in a large hutch two long-haired rabbits and two guinea-pigs, and all were on the best of terms together. A few weeks ago bare places appeared on the backs of both rabbits, and the baldness increased daily, though they seemed to be perfectly healthy and happy: there was no hair to be seen lying about anywhere. One morning a sprightly little baby guinea-pig appeared, and a close search revealed in a dark, well-hidden corner a small nest, cosily lined with all the missing fur. The rabbits show no sign of resenting the robbery, or was it a free gift?

Kingswood Hanger, Gomshall, Guildford, September 8, 1902. M. H. BAKER.

Pendant Martin's Nest.—The martin's nest that was built on a piece of rag suspended from the eaves of a cottage here, and hung in mid air, has undergone a change. Another nest has been built above it on the eaves and joined to it; so the nest that was pendant from a string is pendant from the nest above it, and instead of turning round and round on the string as at first, is now fixed.

Market Weston, Thetford, September, 1902. EDMUND THOS. DAUBENY.

SELBORNE SOCIETY NOTICES.

Council Meeting.—The usual monthly meeting of the Council will be held at 20, Hanover Square, W., on Wednesday, October 8, at 5.30 p.m.

New Members.—S. J. Lea Wilson, Esq., Heathcote Street; Spencer H. Bickham, Esq., Ledbury; Rev. E. F. Russell, Holborn; R. M. Steel, Esq., West Hampstead.

Donations and Subscriptions.—The Council beg to acknowledge the following subscriptions over 5s.: H. F. Tatum, Esq., 10s.; Mrs. Philip Hensley,

7s. 6d.; Mrs. Farquharson of Houghton, 10s. 6d.; Mrs. Richmond, 7s. 6d.; Rev. E. F. Russell, 7s. 6d.; Mrs. and Miss Broomhead Colton-Fox, 21s.

FIELD CLUB RAMBLES.

August 30.—Rickmansworth district. Although it had been expected that both the holiday season and the inconstant weather would tell against a full attendance, yet twenty-five ramblers put themselves under the guidance of Mr. and Mrs. Douglas Wilson, and took part in an excursion which proved to be one of the most enjoyable of the year. The path first followed was across Rickmansworth Park, an enclosure studded with fine timber, where especially noteworthy were the Spanish chestnuts, beeches and limes; among the last-named being one magnificent specimen, whose spreading arms covered a wide expanse of ground. A hasty shower drove the visitors to shelter under some of these trees, and during the wait the opportunity was afforded of observing the ground thistle (*Cnicus acaulis*) which showed in fair abundance, and of hearing from the guides some interesting and informative details of the estate and neighbourhood. Then was traversed the valley of the Chess, and exquisite were the views from time to time of wooded hills and old world cottages at their base. On the surface of the stream surrounding objects doubled themselves when the fitful light allowed; the deeper waters of a pool disclosed a shoal of very fine trout, and the banks were fringed for some distance with the bright flowers of *Mimulus Langsdorffii*. In the fields patches of wild thyme and red bartsia suggested heather, while here and there ragworts were ablaze. Conspicuous, too, was one of the mulleins (*Verbascum nigrum*) contrasting its yellow bloom with purple staminal hairs. A wasps' nest commanded some respectful attention, but the visitors evinced no disposition to come to close quarters. Over the hedges white bryony was climbing, and covering them in places was traveller's joy. On the line of route ashes were numerous, some of them heavy with keys. After a pause for refreshment in Sarratt Vale the hill was climbed to ancient Chenies, but unfortunately the closing in of evening prevented an inspection of the quaint village. Of birds only a few were noted. Robins appeared to have resumed their song; there were wood pigeons away in the woods repeating their cooing cry, "Don't scold so, Sukey"; some butcher birds on the hedge, and swallows overhead sweeping, turning and chattering as if in consultation about their approaching journey over sea. During the walk hearty thanks were voted to Mr. and Mrs. Wilson for their very effective guidance.

September 6.—Hatfield and neighbourhood. A most beautiful day in this dismal summer of 1902, enabled the Selbornians taking part in this ramble to spend a very pleasant afternoon. Owing to the landlord of the "Bull," Stanborough, being unable to cater for tea, and there being no other "house of refuge" on the proposed route of Mr. E. A. Nash, that gentleman entrusted the duties of leadership to Mr. W. Percival Westell, M.B.O.U. High roads are distasteful at all times, but on this occasion the high road had to be followed for some little distance to enable the party to participate in a delightful ramble across Brocket Hall Park, the seat of Lord Mount Stephen. The view from the bridge was much admired, with the River Lea below, its banks beautifully fringed with rushes, the park containing many fine trees, and the river teeming with wild duck, moorhens, coots and other water-fowl. Tea was partaken of at the "Wagoners," on the Welwyn Road, and after a vote of thanks had been passed to Mr. Westell for stepping into the unfortunate breach and arranging the ramble at very short notice, the ramblers dispersed, some taking the train from Ayot to Hatfield, on their way back to London, and the remainder walked through Sherard's Wood and across the fields to Hatfield, to catch a later train.

September is what may perhaps be termed the field naturalist's "Silly Season," and nothing of any rare nature was observed, but Richard Jefferies loved common things, the old-loved spots, or even the coloured yellow-hammer sing, sing, singing; and Selbornians, too, can and do appreciate Nature, even when rambling amongst her more common treasures.

We understand, however, since writing the above, that the venerable Mr. Peter Hastie found during the ramble *Potentilla argentea* and *Verbascum virgatum*, neither of which can be said to be common.

September 13.—Some eighteen members of the Field Club mustered for the

beautiful walk from Woldingham along the Old Pilgrim's Way to Botley Hill. A great part of the walk being on the upper ridge of the hill, splendid and varied landscapes of the beautiful valley of Holmesdale below and beyond were observed and enjoyed by the ramblers. Among the flowers identified was common fleabane (*Pulicaria dysenterica*), blue fleabane (*Erigeron acre*) and Rosebay willow-herb (*Epilobium angustifolium*), as well as some plants of *Atropa Belladonna* in berry. Tea was taken at Botley Cottage, and the walk afterwards down the hill to Oxted was enlivened by the hooting of owls in the surrounding woods. The ramblers much regretted that Mr. Muhlberg, who was to have been leader on this occasion, was prevented by an accident from being present; his place was most kindly taken by Mr. Hunt.

The rambles for the season are now over; but arrangements have been made to enable Members to join in the Fungus-foray of the Essex Field Club, the dates of which are not yet fixed. Those wishing to join should send at once a stamped addressed envelope to Mrs. Percy Myles, 7, Lincoln Street, S.W.

ANSWERS TO CORRESPONDENTS.

F. M.—Neither nest nor description of bird tallies with that of the Hawfinch.

A. B. E. L.—Your insect should have been named *Sirex gigas*—exceptionally abundant this year.

M. J. Teesdale.—Undoubtedly *Sibthorpia*, which is, as you say, rare in Devon. Your other query is receiving attention.

Rev. A. H. Courthope.—Apparently an apetalous monstrosity of *Silene Cucubalus*, of which we have not found any previous record. The Bedstraw is *Galium uliginosum*.

Donald Mathews.—(1) *Festuca pratensis*. (2) *Dactylis glomerata*.

F. C. Martin.—(1 and 2) Both Lime, apparently *Tilia vulgaris*, but I cannot say why one tree does not flower. The exudation you mention is "honey-dew," a dilute solution of sugar, exuded in hot weather, probably in connection with transpiration and through the stomata, and may be termed somewhat pathological. (3) *Pyrus pinnatifida*. (4) *Hypericum pulchrum*.

M. G. Preston.—*Trifolium dubium*, otherwise known as *T. minus*, the species commonly reputed as true shamrock in Covent Garden, Antrim, Down, Meath, Fermanagh, Dublin, Carlow, Wicklow, Westmeath, Wexford, Limerick, Waterford, Cork and Kerry. See Britten and Holland's "Dictionary of Plant Names."

C. Berendt.—The dragon-fly is *Æschna cyanea*, one of the commonest species. It is unnecessary and contrary to Post Office regulations to send live insects by post.

Percy Clark.—The Peasant Arts Society, 8, Queen's Road, Bayswater, W.; price 1s. 6d. each.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., 11, Onslow Road, Richmond, Surrey.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

Nature Notes:

The Selborne Society's Magazine.

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OBJECTS OF THE SOCIETY.

To preserve from unnecessary destruction such wild birds, animals, and plants as are harmless, beautiful, or rare. To discourage the wearing and use for ornament of birds and their plumage, except when the birds are killed for food or reared for their plumage. To protect places and objects of antiquarian interest or natural beauty from ill-treatment or destruction. To promote the study of natural history.

SELBORNIANA.

The Wakes.—The following paragraphs appeared recently in the *Bristol Mercury* :—

"The old home of Gilbert White is for sale. The fact, having found its way into the daily press, opens up a question of absorbing interest to all lovers of the great naturalist and his classic work, 'The Natural History of Selborne.'

"The October issue of Nature Notes states that the Council of the Selborne Society have the matter of purchase under due consideration, their proposal being to have the house purchased and retained as a public trust. It would be more than a matter of congratulation, both for naturalists and the nation at large, if such an object could be obtained. 'The Wakes' at Selborne has always been looked upon as a veritable shrine of one who devoted the major portion of his life to the study of Nature and her ways. Here, in his old home, Gilbert White pursued his studies from year to year, and found, as all such students do find, that the paths of Nature are 'ways of pleasantness and peace.' Far too few literary and historical shrines are left to us; many that could have been preserved have been ruthlessly demolished by that 'destroying angel' of so-called modern improvements—the master builder. It is sincerely to be hoped that the far-famed residence at Selborne will not fall into the hands of some 'utilitarian' purchaser. Such an event would be a catastrophe.

"An excellent proposal in connection with the purchase of 'The Wakes' has been made by Mr. R. Hedger Wallace, one of the prime movers in the recent

most successful Nature-study Exhibition in London. Mr. Wallace suggests that no better place could be found for a school—normal or otherwise—of 'Nature Study,' and that it could be made the centre for English nature-study teaching. He also favours the establishment of a Gilbert White Memorial Library in connection with the school. The number of such books is by no means small, and the list of works on Nature-lore is every year being added to. Moreover, there are considerably over eighty different editions of the 'Natural History' already published, and these would form a valuable section of such a library.

"A better proposal than that of Mr. Wallace's would be difficult to suggest, and all those interested in the recent and very urgent movement for 'Nature Study' will earnestly hope the matter will assume practical shape in the establishment of the Selborne School for Nature Study."

The Preservation of our Wild Flowers.—*Apropos* of the papers on the subject in our last issue, Mr. Philip Cochrane writes to mention that visitors to his garden of wild flowers at Catford Bridge would do well, if possible, to make a previous appointment with him. His address is 13, Marlowe Road, Anerley, S.E.

Mr. H. Stuart Thompson, F.L.S., Hon. Secretary of the Watson Botanical Exchange Club, also writes calling attention to the fact that the plants chiefly collected by that Club are such "critical" species as water crowfoots, roses, brambles, mints, willows, rushes, sedges, hawkweeds, pondweeds, &c., which are little in danger of extermination, and that in the case of rare plants that are in such danger they have a rule expressly permitting the exchange of cultivated specimens.

The Zoological Gardens.—We have received the following letter from Mr. Joseph Collinson, of the Humanitarian League:—"As one or two papers which have criticised Mr. Selous's pamphlet on 'The Old Zoo and the New,' lately published by the Humanitarian League, have refused us the right of reply, may we appeal to your courtesy for the insertion of this letter? It is said that our complaints of over-crowding at the Zoo are 'sentimental.' But the instances given by Mr. Selous are specific and clear; he refers to certain animals whose habits he describes, and shows by quoting the measurement of their cages that it is impossible for them to exercise those habits as they are at present housed, as in the case of the jumping hare whose den was boarded up to prevent him jumping himself to death against the bars. To allege, as has been done, in reply to these definite charges, some jocose remarks supposed to have been made by the animals to an 'interviewer,' to the effect that they are well satisfied with their surroundings, seems rather puerile, and furnishes an illustration of what Mr. Selous himself says in his pamphlet, that 'any poor beast would have almost to take out a pocket handkerchief and weep,' before some people would believe that all was not well with them.

"We are assured, for instance, that the leopard in the Small Cats' House 'cracks his bones with supreme indifference to onlookers.' Possibly, but that is hardly a proof that it is humane to shut a leopard in such quarters; and it seems to be

overlooked that the leopard's bones are in process of being cracked by prolonged confinement, for, as Dr. W. B. Carpenter long ago remarked, the skeletons of the aged carnivora are often good for nothing, even for museum specimens, 'their bones being rickety and distorted.'

"Again, it is said, in defence of the gardens, that a visit there is 'an education.' But an education in what? A few generations ago it was the custom to cage pauper lunatics where passers-by could see them; perhaps that too was an education of a sort. We marvel now to hear of such inhumanity; but it may be that a future generation will equally marvel to hear that the exhibition of caged and cramped animals could give any satisfaction to the children and the grown-up children to whom the Zoo is now a paradise.

"Throughout his pamphlet Mr. Selous uses the weighty argument of the gain to ourselves in knowledge of a creature's habits which would result from healthy, natural surroundings, and from superior accommodation. This is ignored by our opponents, and rightly; for how can they call it 'sentimentalism'?"

THE OPENING OF THE BRANDELHOW ESTATE. — The triumphant achievement of the National Trust in securing this valuable portion of the shore of Derwentwater culminated, on October 16, in the estate being declared open by H.R.H. Princess Louise, Duchess of Argyll. An album presented to Her Royal Highness was prefaced by the following sonnet, by the Rev. Canon Rawnsley:—

> From such a hill might angels long to lean
> And gaze once more upon their native place;
> So calm the waters—Walla face to face
> So calm—Blencathra, Skiddaw, so serene—
> You scarce might think Earth's central fires had been
> The makers of this gentle mountain race;
> While wood and golden fell with loyal grace
> Slope down to greet the daughter of a Queen.
> And here may mortals, weary of the strife
> Of inconsiderate cities, hope to come
> And learn the fair tranquillities of earth;
> Here men may pray, here poet-thoughts have birth,
> Here all shy forest-creatures find a home,
> And wild-wood pleasaunce help the Nation's life.

COLOUR-PHOTOGRAPHY FOR AMATEURS.—We were present recently, by invitation of the Lumière Company, of 4, Bloomsbury Street, W.C., at their first public demonstration of their new and simple process of tricolour photography. The process is at present mainly applicable to the preparation of lantern and stereoscopic slides. An ordinary camera is used, three small coloured-glass screens, blue, green, and red, being attached in front of the lens. A separate negative is taken with each screen on a plate specially sensitive to the particular rays of light which pass that screen, the inventors denying the strict applicability of the terms "panchromatic" or "isochromatic" to

any one plate. From these three negatives prints are made in an ordinary frame under diffused daylight on gelatine-coated plates of mica. They are developed in warm water and then each is dyed in a solution of a colour complementary to that of the screen through which its negative was taken. The three monochrome positives on mica are then superposed and mounted between sheets of glass and the lantern slide is complete. As all the necessary accessories to any ordinary photographic outfit can be supplied for twenty-five shillings, and the process lends itself admirably to the treatment of flowers, mounted butterflies, polarised slides and other "still life" objects, it should become popular with nature-students.

The Tele-photo Lens.—"Among the many moons most of us have longed for at various times are pictures of birds and animals just as they are in their natural surroundings. Russell Lowell used to say that a field-glass was a much better weapon than a gun for bringing the children of nature near to one. What a difference between the bird seen on the bough of a tree, singing in 'full-throated ease,' instinct with life in every feather and movement, and the same songster, blood-smeared and fixed in death, as brought to the hand by the aid of a gun! The lover of nature must prefer the field-glass.

"But the tele-photo lens is even better than the field-glass, for it will catch the image of the joyful bird and perpetuate its picture. It is not too much to say that this lens has opened up a new field of nature study, some of the results of which have already been reaped in the delightfully illustrated books on wild animals at home which have been published since the tele-photo lens came into use. Here are the practical facts in a nutshell. To approach as near a bird as is necessary with ordinary apparatus to obtain anything but a diminutive picture is almost impossible, but, on the other hand, to get the same-sized picture with a tele-photo lens the distance may be four, eight, or ten times as great. Suppose, for instance, it is required to photograph a starling on the edge of the hole in which its nest is built. To obtain a sufficiently large image with a 9-in. lens and a half-plate camera the instrument cannot be more than three feet away. A tele-photo attachment fitted to the same lens, and adjusted to give a magnification of 8, would enable the photographer to retreat with his apparatus to a distance of twenty-four feet and produce a similar picture. The value of this extra distance can hardly be over-estimated in photographing natural history subjects, where the close proximity of a camera is likely to disturb the object."—From the *Dioptric Review*.

MISS COBBE AND HER PERSECUTORS.

THE public throughout Great Britain have been shocked by one of the cruellest attacks upon a woman who, now in her eightieth year, might well for her years' sake have been spared the worry and the mud-throwing consequent upon a public trial, even if her long years of constant endeavour in the cause of kindness to animals did not entitle her to consideration.

It would appear that Miss Frances Power Cobbe, whose pen can be as a sharp sword, had called down upon herself the enmity of the otter-hunting brotherhood in the Dolgelly Vale by vehemently protesting against that particular form of sport. She had brought matters to a head by refusing access to her grounds and stream at Hengwrt for the purpose of pursuing her friend the otter. The brotherhood of sport—and to the credit of Wales, be it said, they were not natives, but men who as Englishmen have brought discredit upon the meaning of the term gentleman — determined to have their revenge. They knew that Miss Cobbe had inherited from her friend, Miss Lloyd, a pair of carriage horses. They knew, too, or might have known, that there was a kind of understanding between the deceased lady and Miss Cobbe that these horses should have the best and kindest treatment that probably ever could fall to the lot of aged horses. Old age came upon them and they grew stiff in limb, but they were stout of heart, took their food well, had comfortable quarters, and did the least possible amount of work.

Now and again, perhaps twice in a month, these aged horses were seen to take a "landau" that weighed 12 cwt., and therefore could not be said to be a heavy one, to Barmouth with their aged mistress. They walked up all the hills, they went very slowly on the level, they rested some hours, were well fed, and then returned. Their gait, or the gait of one who was about 20 years old, was the shuffling gait of most horses who attain to that venerable age; but though the old grey horse went groggily, he went painlessly, and he went cheerily. There was no heat in his legs, and nothing that could in any sense be said to show that he suffered anything but the slow increase of years.

But the otter-hunters who very carefully kept in the background at the trial, thought it would be a huge joke to wait their opportunity, catch Miss Cobbe and her ancient horse midway upon their Barmouth journey, send police to examine the horse in its stable, and lay an information against Miss Cobbe for cruelty to animals.

Such information implied that on June 16 Miss Cobbe had knowingly inflicted pain upon her aged servitor, and that she was indictable for a criminal offence. The worst feature of the

case was that one of the chief actors was a man who seems to have owed a grudge against both mistress and coachman for having ceased to put up at his hotel. I am wrong; the worst feature of the case was the behaviour of those who hatched the whole plot against the venerable lady and who kept out of sight. It was shown at the trial that so unwilling were the police to have anything to do with it at Barmouth that they telegraphed to the Dolgelly police to do their work for them. Manifestly, if the Barmouth police found an aged horse, unfit for work, eight miles from home, their duty was to prevent it returning the eight miles to its home. This they did not do: they felt that such action would be ridiculous.

But the jokers reckoned without their host. As soon as Miss Cobbe was informed of the conspiracy, she got the best counsel and the ablest veterinary to represent her at the trial. The veterinary surgeon, Mr. Stafford Jackson, M.R.C.V.S., has been in practice in Liverpool for twenty-two years. For fifteen years he has always been engaged by the R.S.P.C.A. to examine disputed cases of cruelty to animals, and to advise as to prosecutions in Liverpool, Lancashire, Cheshire and North Wales. He is also engaged by the War Office, and on his reports the Irish Remount Scandal has been exposed. It was on his evidence in Dublin that the defendant's case collapsed. His report about "Beverly" is as follows:—

"An aged grey gelding, aged somewhere in the teens—not 20. I find him showing the usual signs of wear more or less on all four limbs. In his walk he goes perfectly sound. When trotting his gait is what is known to horsemen as 'groggy'—that is, he goes in a shuffling manner, a state of things almost universal in an old animal. It was difficult for me to decide that he was worse on one leg than on the other; but I eventually thought that if there were a difference it was in the off fore leg. I examined both front legs, and both front feet, and I could find no indication of either heat or pain on pressure in either limb. In my opinion, any reasonable work that he might be put to would be quite consistent with humanity, considering the condition in which I found him. I have heard that the police say that the animal was not fit to work on June 16. Of course I cannot give a denial to this, but if such were the case, a slight stumble during his journey would be the cause, and I cannot conceive of it being anything but of a temporary character. In considering the history of the whole case, the charges on the summonses to Miss Cobbe and her coachman which have been shown to me are ridiculous and absurd."

The whole evidence given at the trial lies before me as I write. Miss Cobbe was determined that if publicity can shame men of the type who got up the cruel joke it should do so, and she employed a stenographer and has since seen that the whole evidence shall be laid before the world. The end of the sorry business was a foregone conclusion. The magistrates dismissed the case. But they cannot dismiss from the minds of the lovers of North Wales that this kind of persecution of a respected inhabitant of the Dolgelly Vale who had been before the world all her life as a friend of animals and a preventer of cruelty, and who, now in her eightieth year, might have been supposed to be entitled to consideration at the hands of a whole neighbourhood,

is a blot upon the escutcheon of a whole Principality. If the honest Welshmen of the Mawddach estuary allow their visitors to indulge in such a venomous persecution of the very tender-hearted lady of Hengwrt to pass by without protest, it will mean that residents will not risk their reputations by coming into the neighbourhood, and what might have been an historic vale of rest for men and women of repute will cease to attract the very people of whom all Britain may be proud.

OUR FAVOURITE SPANIEL.

LL people who care for animals must, I think, love dogs especially. I remember a spaniel my brother had, which seemed almost human in understanding. We had him from a puppy and he was always with one or other of us, as he never liked to be alone. We called him Bounce because he was never still. As time went on, Bounce grew into a very large spaniel, with a lovely black and white coat and long silken tail and beautiful soft brown eyes that watched you intently. As he grew out of his puppy ways he became devoted to my brother and hardly ever left his side, so that if you saw Bounce you were sure J. was close at hand. In the evenings, when my brothers came in from shooting, Bounce would dart off to get J's. slippers from among a pile of other slippers and bring them and lay them at his feet ready for him to put on.

He loved to be taken out of doors, and if J. did not go out early enough for him in the morning, he would trot off and get his hat out of the hall and bring it to him in his mouth, just as if he were asking him to put it on and come out and not waste the morning indoors. Bounce loved going out with the gun, but would never go unless one of my brothers went. There was a farmer and also a miller living on the estate, and they were both great sportsmen, and my brothers often took them out shooting with them, and so they knew what a clever dog Bounce was, and I have been told that many times they tried to induce Bounce to go out alone with them. He would go a little way, to a place where my brothers often started from for their shooting expeditions, and then he would stand and look in every direction to see if they were coming, and if they did not come, nothing would induce him to go further.

Once there was a pond being drained, and there were a number of large pike stuck in the mud at the bottom of the pond after the water was run off. My brother J. was watching the operation, and the thought struck him that Bounce would rescue the fish from their uncomfortable position, so he said, pointing to the fish, which were flapping their tails in the mud, " Bounce, go fetch," and Bounce immediately splashed into the mud and

in the most gentle manner put his nose down and brought out fish after fish and laid it at his master's feet, without hurting them the least. The fish were put in water and so kept alive until the pond was refilled. He was so wonderfully gentle and tender-mouthed that he never seemed to hurt anything he caught hold of with a friendly feeling. He would carry an egg in his mouth without breaking it, and no matter what we did to him he would never attempt to bite us. He was very savage, however, to strangers, and was a wonderfully good house-dog. If he saw any person he did not like the look of, all his coat would stand on end, and his whole character seemed to change until we quieted him.

When my brother J. went to college, I remember Bounce was perfectly miserable and would eat nothing for two days, and refused to be comforted, but took possession of J.'s room and kept guard there. At last we coaxed him out, thinking he would come downstairs and be happy with the others, but this he refused to do, and would only lie outside the door until his moody fit passed. When J. went away he gave Bounce into my charge, and once when he was ill I ordered one of the men to give him some castor oil. After a short time the man sent for me, and looking very white he informed me he had not been able to drench Bounce as he had tried to bite him, and would not allow him to open his mouth. So I took the oil from the man, and going into the stable I found poor Bounce looking very ill and wretched. I first talked to him and patted him, and then without any difficulty I opened his mouth and poured down the medicine. He did not seem to mind my doing it in the least, and I am glad to say he soon quite recovered.

My brother, when at home, used to have Bounce to sleep at the foot of his bed. This was against my father's orders, and sometimes after J. had gone to bed, my father would pay him a visit. J., knowing his step, would fling something over Bounce and tell him to lie quiet, and he seemed to understand, for he would lie like a mouse until my father had left the room and shut the door. Then he would jump up, shake himself, and lie down again in his accustomed place.

At this time we had two other dogs, a setter and a Bedlington terrier. They were great friends, and often in the day they used to disappear, and we could never imagine where they went. At last they were watched, and it was discovered that they used to go off rabbiting on their own account, and the funny thing was that they seemed to have a settled plan between them to divide the labour.

The terrier, being much the smaller, used to go into the bushes and send out the rabbits, while the setter would watch patiently outside until a rabbit was started and then give chase. One day the setter had hurt his foot, and so could not get along very quickly, but notwithstanding this accident the two dogs set off as usual. My brother, thinking he would like to see how

they managed now the runner was disabled, followed at a distance to watch them, and he was immensely interested to see the setter go into the thicket, while the little terrier stayed outside in his friend's usual place. It seemed just as if they had taken counsel together and decided that it was the wisest plan for the fleetest runner to stay outside. I never heard if they caught anything on this particular occasion, but I am sure they deserved a reward for their cleverness.

PARNELL JONES.

THE PATH IN THE WOOD.

ONE of the glories of Southern Hampshire is its woods: they clothe the hillsides, fringe the streams, and fill up many acres of the low-lying lands. All lovers of the picturesque know the New Forest, but to that great tract belongs a distinction all its own. Apart from those thousands of acres of woodland and heath there are other districts where the woods have an equal charm, even though they may not boast of trees so magnificent or so old as the giants of the Forest. The wanderer through the district south of the chalk downs has little difficulty in imagining what a vast stretch of woodland must have covered the country in the bygone days, before cultivation began to make inroads on the forests. Those were the days when our forefathers gave to the pursuit of war and of the chase the time that now is spent upon the more peaceful pursuits of agriculture and manufacture. Hunting was then the sport for kings and nobles, and their followers vied with each other in the excitement of the chase. Now banks and fences enclose the woods, a line of demarcation separates them from the fields and pastures, and the old hunting days are gone. There is no wild animal but the fox to call the huntsmen to horse in the winter mornings, and half-tame pheasants are the chief quarry to fall to the sportsman's gun. Before the progress of advancing civilisation the wild animals of the old forest are gone: man's advance means beast's destruction; and what has passed in England is passing now in the great advancement of the New World and in the rapid civilising of the hunting-grounds of Africa. The botanist also raises his lamentation over the disappearance of some plant which is gone before the clearing, the plough and the hedge-trimmer; and the entomologist looks in vain for the butterfly or moth that in former years fell to his net in a spot where houses or cultivation have destroyed its haunts. These things must be: man must advance: he must be housed and fed, and it cannot fail to be at the expense of wild Nature. Only let the advance be tempered with such care and discretion as shall not fail to leave what may be left of Nature's delights for those who come after.

These Hampshire woods are full of the charms of Nature, and at no season do they lack their elements of beauty, whether it be the fresh green of the young leaves when the warmth of spring first stirs them into life, the lights and shadows of the foliage in the summer sun, the rich browns and yellows of the autumn, or the sparkle of the hoar-frost on the branches stripped by winter's cold. The sense of beauty is stirred by every ramble in these woods: their beauty is one that the painter's richest canvas only copies at a humble distance; and bird and flower and insect combine to tell of the wonderful variety of Nature's lessons to him who will learn from them all as they uplift their Benedicite.

Through one of these woods there leads a path which may be safely trodden without risk of interference from gamekeeper or woodman, for it is a cherished right of way. Descending from the heath outside it leads across the wood, dipping down to cross a dell, and rising again to reach the opposite road. The wood is one which bears the characteristic features of all these Hampshire woods, and for the variety of the interests which it can excite it will scarcely be second to any other.

Visit it in the spring. Across the heath the larches in their spring livery are at their very best, and the birches as they quiver in the breeze send flashes of green and silver to the eye: grace and beauty are nowhere more pronounced than in their quivering leaves and silver bark. Down amongst the still dark and dry heather the first blossoms of the little milkwort are visible, blue or white or pink. On the place where a furze fire has burnt there is a velvet carpet of brown moss—the first sign of life to spring from the black, charred soil. Inside the wood the Brimstone butterflies have emerged from their long winter sleep and are busy with their spring courtship, soon to be followed by the end of their little life. They lack the vivid hue that decked their wings last autumn, when they emerged fresh from the chrysalis and enjoyed the warm sunshine before settling down to the long period of hybernation. A warm and sunny February day has probably tempted some of them out long ago, but the frosts of March soon sent them to sleep again. It is one of Nature's wonders that these butterflies, so different from the caterpillar from which they came, should know unerringly how to place their eggs upon the shrub where the newly-hatched caterpillar will find leaves ready to its taste, while the parent in its perfect winged state has tasted nothing more substantial than the honey from a sallow bloom or early spring flower. Up and down an oak tree flies a larger insect—a Large Tortoiseshell. It, too, like the Brimstone, has spent the winter hybernating in its perfect state, and must be seen in late summer and autumn to be seen at its best. The oak itself is full of beauty: in the sunshine the leaves are a golden green, but not yet fully developed, so that the view into the tree is a clearer one than when summer has turned the full-grown

leaves into a darker green. The oak-apples, those marvellous products of the gall insects, are plainly visible—excrescences indeed upon the tree, but adding to its interest and beauty, and more prominent by far than the little green tassels which constitute the flowers. A dark and sombre yew, contrasting well with the young foliage of oak and birch, is lively with the sound of many birds, chiefly titmice of various species. They are sprightly little birds, and not so shy as many of our feathered friends. Occasionally the loud, harsh call of the pheasants draws attention, and promises future sport to the gunners when autumn shall come and make slaughter legal.

A glance down upon the path will show a busy army. Backwards and forwards all the day long march the wood ants, to and from their citadel of fir-needles and other fallen rubbish, some bearing burdens that seem too unwieldy for their size, but staggering bravely along, and perseveringly surmounting the obstacles in their way. Sometimes two together will be tugging along a caterpillar four or five times as big as themselves. Their progress under their load may be slow, but they will not give in. They are soon lost in the undergrowth when they have crossed the path, but reappear wherever the ground is clear enough. Their ways in English woods are not always easily visible, but in the mountain pinewoods of Switzerland, where the undergrowth is scantier, they can be traced more easily and their persevering struggles with huge burdens be watched for a longer space of time. From the great ant-heap where they live there comes a distinct rustling sound, the noise of their many moving feet, and if some meddling stranger will stir up their citadel with a stick, with the rustling noise of their armies will be mingled the pungent smell of the acid that constitutes the poison of their weapons.

Looking off the path we see how the struggle of life and death is going on. Thickly matted on the ground are the dead bracken and the fallen leaves, dry and crisp in the spring sunshine, but through the brown pushes the living green. The young bracken is gradually forcing its upward way, and patches of anemones and spurge and wood-sorrel deck the ground with white and green. White and fragile as the flower of the anemone is, it is a pity that visitors to the woods will not leave it in its place. No blossoms fade more quickly, and too often are they picked only to be thrown down by the wayside, wasted. Down in the dell in damper ground far more flowers are to be seen: marsh marigolds and lesser celandine, marsh violets and large dog-violets, and, beyond where the path rises again, the wild hyacinth and yellow pimpernel and ground ivy; but the few primroses have passed their prime.

A few weeks later, when the leafy month of June is bringing in the summer, the bees are busy on the buckthorn flowers, small and inconspicuous flowers to the human eye, but whose value to the insect hosts does not consist in size, but in sweet-

ness. So of all the flowers, the most favoured by the insects are not the large and showy ones, but such as the lime and ivy and sallow, all of which will provide in their season a concert of insect musicians on a sunny day. This buckthorn flower is sweet, but small, and unattractive to the passer-by, whose attention will be caught by the hum of the bees rather than by the flower itself. The early spring blossoms are gone, but others have taken their place. The bugle holds up its stiff blue spike and begs the assistance of the passing humble-bee, while attracted by its colour the Pearl-Border Fritillaries have pitched upon it, and are opening their orange and black and silver wings to the sunshine. Wild strawberry and sanicle edge the track with their blossoms, and the guelder rose has spread its large white clusters of flowers. Flitting hither and thither all through the wood is the speckled yellow moth: its numbers are very great: like the butterflies it loves the sunshine, although most of its kind are lovers of the evening twilight, and scarcely to be seen by day, unless startled from their resting-place by a blow upon a branch or disturbed by passing feet.

In the sunny summer days this wood is a favoured haunt of the butterflies that hold high festival in the leafy glades. Where the honeysuckle and the bramble abound there will the butterflies be likewise. Over the bramble flowers fly the gorgeous silver-washed Fritillaries: they are amongst the brightest and the largest of our butterflies, and as the sun pours down upon the white bramble flowers, these bright-hued insects flash along like gleams of living light. But more graceful and of a beauty more chaste than these are the "White Admirals," which sail with stately flight along the glades and around the trees. What a marvellous combination of soft colours are the under-sides of their beautiful wings, and what a charm there is in their every movement. Of all these winged frequenters of our southern woods, Sibylla is beyond all doubt the queen. As a pattern of beauty and grace of movement not one of our insects can bear off the palm from her. The more sedate and less conspicuous insects cull the honey from the flowers that border on the path: the "skippers" are a humble race, and along with them fly the sober and common "browns." Outside, on the heath, silver-studded blues join with "browns," flitting in the sunshine, and the grayling shows how well Nature has provided it with a means of concealment from its enemies. Suddenly it settles amongst the stones or on the bare ground, and as it closes its wings, disappears from view: the mottled grey and brown of its under-side is scarcely distinguishable from the stones or soil on which it has pitched. This protective mimicry is well illustrated in many insects: the white, silky moth that rests within the wood on the bramble bush, scarcely to be distinguished from the blossom, the caterpillars of the geometer group of moths, like little twigs of the trees on which they feed, the grey and mottled wings that protect their owners on the

tree trunks or the palings by their resemblance to a withered leaf or splash of mud.

Yet one more visit to the wood: it is late summer now, and the flowers are few and the butterflies are almost gone. Heavy thunder-storms have left their mark upon the path: it has manifestly been converted into a water-course by the downpour of summer rain. Instead of flowers there will be beauty of another sort, for there is little of floral beauty but betony and mint and scabious now. But the change from flower to fruit is evident on every hand. Little acorns on the oaks, berries on the buckthorn and the guelder rose, red and black fruit upon the brambles, have succeeded to the flowers, and fungi abound wherever the path is damp. The year has passed its prime, and instead of life and growth all tokens point now to coming decay and death. Very soon the trees will put on their autumn garment of brown and yellow and russet, and then the stillness of winter will settle down once more upon the woods.

REVIEWS AND EXCHANGES.

Our Country's Fishes. By W. J. Gordon. With every species illustrated in colour and many sketches in outline by A. Lambert. Simpkin, Marshall and Co. Price 6s.

The study of fishes can never be a very simple one, and previous works on British fishes have been far more expensive than this. Drawn up on the plan of Mr. Gordon's previous popular works, it is sure to command a large number of students. The anatomical chapter, awkwardly named "Sortation," though well illustrated, is none too long, and the chromolithography of the thirty-three plates, which include 252 figures, is crude; but then the book is certainly very cheap.

A Book of Sonnets. By John Bernard O'Hara. Melville and Mullen. Price 3s. 6d.

Mr. O'Hara is an Australian poet who has already published three small volumes of poetry, though we confess his work was previously unknown to us. The loss is ours. Many of his objects are inspired by Nature; but of the fifty sonnets in the present collection, we prefer the following:—

TO SCIENCE.

Immortal Spirit moving to thy prime,
  Undying and indomitable maid,
  In shining Truth's refulgent robe arrayed,
What height is left thy venturous feet to climb,
Who flingest now across the heavens sublime
  Thy pathless utt'rance, even too hast laid
  The abysmal darkness naked, and hast strayed
Through the least protoplasmic world of Time?
Yet wilt thou, linked with Her who lifts the soul
  Beyond the world's reverberating din
  To morning heights, raise slowly from the sod
The slave to manhood, from the masses roll
  The inveterate environment of sin
  That mocks the revelation of a God.

It is a small matter; but personally we much prefer sonnets printed on a single page.

Earth and Sky, No. II. A Second and Third Grade Nature Reader and Text-book. By J. H. Stickney. Ginn and Co. Price 1s. 6d.

With good sensible type and binding, but somewhat mediocre illustrations, this little book contains forty-three reading-lessons in prose and verse, many of them by standard authors, such as Björnson, Hans Andersen, and Dr. George Macdonald, suitable for the lower standards in schools; but, in our opinion, regrettably disconnected.

Report and Transactions of the Ealing Natural Science and Microscopical Society for 1901-2.

Full abstracts of the lectures of the session are given, dealing with a varied assortment of topics, mostly not local. Mr. Allen Brown's on "Recent Discoveries in Relation to Pre-historic Man in Ealing" is illustrated by a plate of four palæoliths.

Pearson's Magazine for October, 1902, contains an interesting article entitled "Eye to Eye with Wild Beasts," describing Mr. Arthur Head's ophthalmoscope studies of menagerie animals.

Received: *The Butterflies and Moths of Europe*, Parts 11 and 12; *The Dioptric and Ophthalmometric Review* for September; *Report of the Zoological Gardens, Ghizeh, near Cairo*, for 1901; *The Victorian Naturalist* for August; and *The Humane Review*, *The Naturalist*, *The Irish Naturalist*, *The Naturalists' Journal*, *The Animal World*, *The Animals' Friend*, *Our Animal Friends*, *The Humanitarian*, and the *Agricultural Economist* for October.

NATURAL HISTORY NOTES AND QUERIES.

Autumn Lambs in North Wales.—I saw to-day (September 22) a ewe and three lambs on a farm in the Vale of Clwydd. This is not unknown, but very uncommon in these parts. F. L. RAWLINS.

Black Woodpecker.—My memo. in NATURE NOTES (p. 116) on the black woodpecker has led to a correspondence which may be worth recording, and is of unusual interest, as I believe it is correct to state that this bird previous to 1897 had not occurred in England for many years—indeed some authorities question its title to be considered a British species. A well known ornithologist, whose opinions cannot be other than weighty and entitled to great respect, in thanking me for letting him know of the "supposed occurrences of the great black woodpecker," suggested that "the birds seen may have been nutcrackers (*Nucifraga caryocatactes*), which are very dark brown in colour, and would look very black on the wing:" adding that "the best authorities do not consider the black woodpecker is at all a migratory bird."

I then communicated the substance of his remarks to those who had seen the birds, and have received the following replies:—

"The birds called somewhat like a green woodpecker, but shriller. The red on the head could not be seen. What I go by more than anything else is the flight of the bird. No bird flies exactly like the woodpecker in long curves; these birds did so, and consequently I believe they were peckers, and that H. has proved to be correct. As to the 'nutcracker' theory, I don't believe in it, not because I have never seen the birds here, but because no crow flies like a pecker, and also because the white marks are 'very clear,' and the birds seen at —— had no such marks. Butler in his "British Birds," says the nutcracker's appearance has always occurred either in autumn or early winter. The peckers were seen at —— in spring.—Yours ever, C."

"In answer to your letter, I saw the black woodpecker in Ixworth, in a small 'carr' by the river, while fishing in July, 1897—a cock bird with the red crest very distinct. It came to me, not I to it, and therefore was not frightened as it did not see me. It perched on a dead branch or rather limb, and hit it several resounding cracks. Apparently not satisfied, it flew off with the dipping flight of

the green woodpecker, but stronger, About three weeks afterwards I saw a pair in Euston Park. I got over a hedge and trespassed, attracted by the extraordinary noise, bird like, and not unlike that of green woodpeckers, and yet very different. The sound was that made by a blacksmith's hammer, but if possible more resonant. In this case I saw both birds going up a huge solitary oak, the hen having a greenish red crest only on the occiput, and nearly black or dirty black all over. The cock I did not see so clearly, but distinctly caught the flash of his red crest. I did not see either bird fly on this occasion; they got away from the tree most mysteriously, and I next heard the clanging half laugh a long way off, and I dared not trespass in search. I have absolutely no doubt of the identity of the species. It is well known that Lord Lilford liberated some birds towards the end of the nineties, and it may have been a pair of them. I know as well as Mr. —— the difficulties in the way of supposing a genuine wanderer from the Black Forest. As to the nutcracker, no one could mistake it who has once seen it. It is dark, but if mistaken for anything it would be for a jay. I have seen it in Norway, and I should describe its flight as jay-like, but stronger, and more resembling the wavering flight of the jackdaw. The note is like a policeman's rattle, or sometimes a harsh gurgling 'chough.' Whatever C. saw, I am dead certain my vision was a black woodpecker and nothing else. I quite admit the difficulty of accounting for its presence here, knowing as I do the bird as an inhabitant of the darkest pine forests. I hope my account as above is clear; but I do not expect to convince Mr. ——, or any one else. All I protest is that I saw the black woodpecker twice, and I am quite sure.—Yours very truly, H."

The matter, then, stands thus. In July, 1897, H. sees a cock black woodpecker at Ixworth, and a few weeks afterwards a cock and a hen at Euston Park, three or four miles off. This he reports to me, and I write to C. to look out. Nearly five years after this, that is, last April, C. writes to me reporting the occurrence of three birds at a spot the name of which I suppress. I hope they have reared some young this year, and that their numbers will increase.

Market Weston, Thetford, EDMUND THOS. DAUBENY.
September, 1902.

A Foster-father.—Have any of your readers in their natural history studies come across a case like the following? A nest of young thrushes in this neighbourhood were left orphans, and curious to say, a cock robin took it upon himself to bring them up. Young thrushes are proverbially slow at feeding themselves, and it was ridiculous to see these huge children expecting so much attention from their small foster-parent even after they had left the nest.

Crofton Hall, Orpington, A. R. FRANCIS.
September 22, 1902.

A Late-hatched Cuckoo and its Early Life.—We observed this young bird from July 25, when he was disturbed from a nest, to August 9. He was fine and well grown, but kept two servants to feed him, a whitethroat and a robin; the whitethroat was kept busy in the early morning bringing him green caterpillars and putting them into his mouth, and the robin also helped during the day. "Great lazy thing," was the remark of one of the village school-children who watched him, "it's a shame." He ate incessantly. One morning a cat appeared in the garden, and these devoted servants screamed and shrieked to warn him of his danger. The school-children had a good object-lesson, and our observation confirms that of Mr. Curtis, given in the September number of NATURE NOTES, as to the lateness of cuckoos' broods this season.

Longbridge, Deverill, Wilts., KATE SMITH.
September 7, 1902.

Late Cuckoo.—A cuckoo haunted our garden for many days last week, and we saw him last on September 20. He was a young bird, with the conspicuous white patch on the back of the neck, and we frequently saw him eating the caterpillars of the common white butterfly from off the cabbage leaves.

Is not September 20 very late in the year for a cuckoo to be still in England? I may add the weather was fine and sunny.

10, *Stockleigh Road, St. Leonards-on-Sea,* H. R. M. BEASLEY.
September 28, 1902.

The Cuckoo's Note.—Has any reader of NATURE NOTES noticed the following peculiarity in the call of the cuckoo? For several seasons a cuckoo has frequented the valley in which Swimbridge (N. Devon) is situated, and has continuously called "cuck-*koo-koo*." I never heard but this one (which was presumably the same bird each season), and this always in the same neighbourhood, viz., in what is known in N. Devon as a mazzard garden. I have heard, and seen recorded, the "*cuck-cuck*-oo," but never the repetition of the second note.

Swimbridge, North Devon, W. SHELLEY.
September 2, 1902.

Albino Swallow.—The *Daily Mail* of September 6 states, among other items of news, that a pure white swallow was shot at Mowsley, Leicestershire. The reason for shooting such a harmless and interesting bird is not stated. But I notice that John Harwood Hill, in his "History of Market Harborough," when giving a description of Noseley Hall, Leicestershire, states that in the brown parlour are two paintings of a white bird on one picture, with a written notice—"This remarkable swallow was *taken* at Noseley Hall, August 18, 1754, and painted from life." It would be interesting to hear from any of your readers of other instances of the albino swallow having been seen, but I hope not shot.

13, *Flanders Road, Bedford Park,* W. H. BILLINGS.
Chiswick, September 8, 1902.

A Late Singing Robin.—A robin that frequents my garden who commences singing before daylight, and has his final bath and song after all the other birds are at rest, much surprised me the other evening by singing at 9 p.m.! Being October 6, this was three and a half hours after sunset. He was on the branch of a tree above the wall of my neighbour's garden by the side of the pavement, and facing the light of an incandescent gas street lamp.

October, 1902. R. M. W.

Sparrows Immured by Martins.—In a long article on swallows in a number of the *Scotsman*, sent me a few days ago, there is the following: "We have heard tell of a remarkable ruse when a sparrow had got inside a martins' nest and held the owners at bay. Ejection was deemed impossible, but revenge was within their reach. The injured martins gathered a band of their friends, each with a bill full of mud, plastered up the doorway, and thus entombed the enemy." When a small boy, half a century ago, I used to look upon this story as a splendid case of instinct; but from that time to this I have never come across a pair of eyes that have seen an instance of it. Is there any authority for this ancient belief? Has any one seen it take place? Though loth to call it so, I fear it is a myth.

Market Weston, Thetford, EDMUND THOS. DAUBENY.
October, 1902.

A Sparrow Frightened.—Most of us, I think, are not sorry to see a cock-sparrow daunted by anything; but one hardly expects him to be afraid of a fly! The dogs were being fed in their kennel the other day, while a row of sparrows watched on the fence. Presently came by a huge dragon-fly. He alighted close to one of the lot, a fine cock-sparrow, whom he "covered" with a pair of gigantic eyes. The bird, taken aback, sat still for half a minute winking, then took to his wings and fled!

Elrick, Aberdeenshire, E. V. B.
September 8, 1902.

Queer Nesting Places.—A greater or ox-eye tit last month successfully hatched and reared a brood of six youngsters in a wayside letter box attached to a gate-post. The only means of access was through the aperture for letters, which was rather wider than ordinary. Three times did they build their nest and lay eggs only to be robbed by mischievous youths; but even then the bird was not made to desert the spot, but again laid six eggs, this time on the bottom of the box, afterwards building the nest around them. The mere dropping in of letters did not disturb the old bird, and when the postman opened the box she simply flew out on the rails close by, and as soon as he had closed the front flew back and returned through the opening.

On July 6 a brood of five blue tits took to wing which had been hatched in a large iron crane near the wheel at the top. It was in constant use lifting heavy weights from railway trucks.

57, *Shakespeare Street, Stratford-on-Avon*, *September* 9, 1902. F. W. SAVAGE.

Moorhens.—The sexton of the village of Stanground in Huntingdonshire told me that in the early hours of the morning, before it was light, both he and his wife had been aroused by a noise in the chimney. At the usual time he got up and went to work, but when he returned home for his midday meal his wife asked him to go upstairs as there was a strange bird in the room. He went and chased the bird into a cupboard and captured it. It proved to be a moorhen. It had evidently perched on the top of the chimney, gone to sleep, and had accidentally fallen down. I have had such birds as starlings, jackdaws, and on one occasion a pigeon come flapping down a chimney in the early hours of the morning, but what was the moorhen doing perched on the top of a chimney?

Peterborough, *September* 20, 1902. W. H. BERNARD SAUNDERS.

Crow attacking a Dog.—One severe winter a pug dog was attacked by a grey crow, which made repeated swoops at it in a determined manner. The dog took refuge under a gate, close to which the crow settled with the apparent intention of renewing the attack when the dog moved. On the dog's master approaching the crow took itself off. Hunger no doubt was the cause of this onslaught.

Market Weston, Thetford, *September*, 1902. EDMUND THOS. DAUBENY.

Homes for Birds.—In February last I put up an old tea-kettle for a pair of robins to build in, and in due time six young were reared. I put a house-sparrow's egg in with the robins' eggs, and in due time the sparrow was hatched and reared by the robins. J. HIAM.

Rare Visitors.—On Wednesday, the 8th last, when out in the fields, I heard an unusual note for this locality in the autumn—in fact, at any season—the note of the ring-ouzel, which I never met with in the autumn before. It was in a tall, neglected hawthorn hedge, and to make sure that I was not mistaken, I went round, and it flew off into the next hedge, a distance of about 100 yards.

I also saw a solitary wheatear, on wheat not set up, a few weeks, which is a rare bird in autumn, and only occasionally seen in spring. J. HIAM.

Scops' Owl and Ring-Ousel.—In regard to your correspondent, W. Westell's article in NATURE NOTES of September last, concerning "Scops' Owl and ring-ouzel Nesting in Hertfordshire," I beg to quote Howard Saunders, in his "Manual of British Birds." In speaking of Scops' owl he says: "The often-repeated story of the breeding of the Scops' owl at Castle Eden Den in Durham is untrue; while, as regards the five or six occurrences ascribed to Norfolk, Mr. J. H. Gurney, junior, considers only one, that of November, 1861, can be implicitly relied on."

Harrogate, Yorks., *October* 14, 1902. NOEL PORTER.

Red-underwing Moth.—On the morning of October 1, I noticed a fine specimen of *Catocala nupta* on the trunk of an elm, close to the gate of a house and the pavement of a fairly busy suburban road, and within thirty yards of a fixed stopping-place of a line of 'buses. It was still there on the morning of the 3rd, but had disappeared on my return in the evening.

October, 1902. R. M. W.

A Mysterious Butterfly.—On August 13 last I saw in North Devon a butterfly which seemed to be new in my experience. I consulted Barrett's plates of the British *Lepidoptera*, and the nearest approach to my insect was afforded by *Thecla quercûs* (female). But I am now informed by Mr. Barrett that the butterfly was probably not British, nor even European. It has therefore occurred to me that possibly the insect may have been unintentionally brought over to this country by some of the American visitors who this year swarm at Clovelly, and some of whom have doubtless stayed at Bideford.

In size the butterfly may have been equal to one and a half (possibly two) "azures." In colour it was dusky—almost black. On each side of the body was a largish patch of rich blue (not, I think, purple); but I do not remember whether this was on the hind-wing or the other. The patch of blue was, I think, longitudinal, not latitudinal, as in Barrett's plate of *Thecla quercûs*. I am under the impression that the outline of the patch was not "toothed," but I am not now perfectly sure. The dale in which I found the insect was well wooded. It was in the middle of the road, and was perhaps feeble or injured. I did not capture it, but placed it for safety on the bank.

Ashford, near Barnstaple, E. G. ALDRIDGE.
September 12, 1902.

Why does a Devil's Coach-horse turn up his Tail?—Why does the cocktail beetle, or devil's coach-horse (*Staphylinus oleus*) turn up his tail and discharge a liquid when irritated? Can the liquid do any harm, and in what way is it any means of defence? Some defenceless insects have recourse to the expedient of pretending to sting although they have no such weapon. A male wasp will bend its body as if in the act of stinging, I am told, and so will a drone bee. Is the cocktail beetle's turned-up abdomen a similar ruse—mere bluff? If it is he has succeeded, for many people give him credit for being able to "sting," and it is a not uncommon folk-lore belief that care must be taken not to be stung at the extremities of the fingers or toes.

Peterborough, W. H. BERNARD SAUNDERS.
September 20, 1902.

Caterpillars in Stems of Water-plants.—A small pond that I have visited is covered with reed mace, commonly, but incorrectly, called bullrushes. In these there were numbers of chrysalids of *Nonagria typhæ*. The stem is tenanted by a single caterpillar, which causes so great internal injury that the plant could not survive the ravages of more than one. The perfect insects will soon be busy laying their eggs for next year's generation. The moth probably flies from plant to plant, laying a single egg on each; but as this is repeated by others, how comes it about that there is only one caterpillar in a plant, for the stems of the reed-mace are surrounded by water which prevents it from moving about? And most internal feeding caterpillars cling to the home in which they were born. In the case of several eggs being laid on one stem, how do the caterpillars manage? Do they kill each other?

Market Weston, Thetford, EDMUND THOS. DAUBENY.
August, 1902.

Ants.—The ants which "R" finds swarming in his lawn this year have probably been there for many seasons, and have escaped notice from not being so active in their operations above ground in dry as in wet summers. We have had a good deal of rain the last week or ten days, and during that time the ants have been unusually busy. There are hundreds of little hillocks of earth thrown up by them all over my lawn, and the harder it rains the harder they seem to work. In dry weather the hillocks are dispersed to some extent by the wind in the form of dust.

Market Weston, Thetford, EDMUND THOS. DAUBENY.
August, 1902.

May in September.—This may-blossom was gathered at Moseley; it seems somewhat absent-minded of the hawthorn to attempt a second crop so late in the (*soi-disant*) summer. Have any other Selbornians found September May?

Harborne, Staffordshire, DORA C. STURGE.
September 9, 1902.

Albinism in Flowers.—I should like to ask whether there is any reason to think that on certain soils flowers of different species are more likely than elsewhere to have *white* flowers. We seem to have a good many white varieties of common flowers in this district, *e.g.*, by our roadsides the sweet violets are white, with, I believe, scarcely an exception; some 300 yards from this house there comes up annually a white *Vicia sepium;* in my garden appear annually several plants of white herb Robert. There is white chicory in the parish, though I only know of

it in one place this year. I have found white melilot this year. Betony and premorse scabious are found almost, if not quite, pure white. White valerian may be seen by the side of the railway near Maidstone. I am not sure of white foxglove outside the garden; but white "blue-bells" are found in our woods from time to time; and I suspect other species could be named by better observers. Except in the case of the violets, the white variety is the exception.

Otham, Maidstone. F. M. MILLARD.

Melilotus officinalis.—A plant of this native species appeared in my garden at Brighton last year, and this year has grown to such unusual dimensions as perhaps to deserve a note. The extreme limit of height given in such books on British flora as I possess is four feet, but the tallest of the five stems of my plant measures eleven feet and six inches. It began flowering ten weeks ago and has not yet finished, the number of racemes produced being at least sixteen hundred. It has been much admired for its graceful lightness, and enquiries have been made as to what the beautiful, new exotic shrub is. I do not know what the favourable condition is; the soil is far from rich, and no other plant in the garden exhibits a luxuriant growth. The position is sheltered, except from the north-east.

Brighton, J. L. OTTER.
September 30, 1902.

SELBORNE SOCIETY NOTICES.

Council Meeting.—The usual monthly meeting of the Council will be held at 20, Hanover Square, W., on Wednesday, November 12, at 5.30 p.m.

New Members.—Arthur B. Prowse, Esq., M.D., Clifton; Henry Pantin, Esq., Beckenham; R. Hedger Wallace, Esq., Ealing; and L. Douglas Wilson, Esq., Brondesbury.

Donations and Subscriptions.—The Council beg to acknowledge the following subscriptions over 5s.: Mrs. M. J. Teesdale, 10s.; Executors of the late Sir Edward Hertslet, 10s. 6d.; Lady Farrer, 20s.; Geo. H. Edwards, Esq., 21s.: Mrs. A. Severn, 10s.; Mrs. F. Alfred Currey, £3 3s., and Thos. Layton, Esq., 10s.

Mr. Wilfred Mark Webb, who has for some time past been the delegate of the Ealing Branch, has been elected a member of the Council and Honorary Librarian.

NEWS FROM THE BRANCHES.

Bath.—The following lectures have been arranged for the winter:—

October 13.—"Reminiscences of the Flowers of 1902, as seen through the Stereoscope," Mr. E. J. Appleby.

November 10.—"Notes on the Bath Flora," Mr. W. C. Ellwood.

November 14.—"The Growth and Structure of a Tree," Miss Wheelwright.

December 8.—"Mosses," Miss Wheelwright.

January 9, 1903.—"The Decorative Aspect of Plant Life," Mr. Griffen.

February 13.—"Stone Crosses, Ancient and Modern," Mr. E. J. Appleby.

March 16.—"Life History of a Fern," Miss Long.

Croydon.—The following winter meetings have been arranged:—

October 2.—"Some Surrey Birds," by E. A. Martin, Esq., F.G.S. Illustrated by Lantern Slides lent by the Society for the Protection of Birds.

October 22 (Wednesday).—"Sheep and Goats," by the Hon. Sec. Children's Lecture at Mission Hall, Johnson Road, Whitehorse Road, at 7 o'clock. Humanitarian League Slides.

November 6.—"Volcanoes," by H. Keatley Moore, Esq., B.A., B.Mus.

December 4.—"The Geological History of Croydon," by N. F. Robarts, Esq., F.G.S. Lantern Lecture.

February 5.—"Gilbert White and his Visits to Ringmer, Sussex," by William Martin, Esq., M.A., LL.D. Lantern Lecture, with New Views of Selborne.

March 5.—"British Vegetable Galls," by Edwd. Connold, Esq., F.E.S. Lantern Lecture. Members free as usual. A charge will be made to non-members of one shilling each.

April 2.—"A Tour round the Croydon District with the Camera," by J. C. Baldock, Esq. Lantern Lecture and Annual Meeting.

Unless otherwise stated, the meetings are held, by kind permission of the Misses Sturton, at North Park Ladies' College, London Road, West Croydon (entrance in Campbell Road), on the First Thursday in each month, at 8 p.m.

FIELD CLUB RAMBLES.

Saturday, September 20, 1902.—Excursion to Broxbourne. Leader, Mr. S. Austin. The party met at Broxbourne Station on the arrival of the 2.15 p.m. express from Liverpool Street. Leaving the station, the path through Paul's Nursery was taken—where several interesting plants were observed in flower—to the High Road, and then the lane to Broxbournebury. Here a footpath was followed skirting the park, to Cock Lane. This was followed to the Roman Road, which in turn was taken as far as Goose Green. Tea was partaken of at the Green Man Inn, and after tea a footpath was followed through the woods to the farm and the Pollards, back to Cock Lane and the field path, &c., back to the station. The fine afternoon contributed very largely to the enjoyment of the outing, coupled with the lateness of the season, which gave the country an unusually fresh and green appearance for the time of year.

SELBORNE SATURDAY AFTERNOONS.

Saturday, November 15.—**Natural History Museum, Cromwell Road, S.W. (Mineralogical Department).** Meet Mrs. Percy Myles in the Central Hall, 2 to 2.15. Mr. L. Fletcher, F.R.S., Keeper of the Department, has kindly undertaken to give "A Chat about Meteorites."

Saturday, November 29.—**The Charterhouse.** Meet Mrs. Percy Myles at the Gate of the Charterhouse, at 2 (for 2.15). The Master, the Rev. Canon Haig-Brown, has kindly consented to act as Guide to the Selbornians.

ANSWERS TO CORRESPONDENTS.

M. J. Teesdale.—No fungoid growth is discernible on the hawkweed leaf.

R. Turle.—(1) *Cuscuta Epithymum*, Dodder. (2) *Mentha arvensis*, Mint. (3) *Galium palustre*, Marsh Bedstraw.

S. U. Body.—Some species of *Vriesia*, a Bromeliad from Brazil.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unaccepted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., 11, Onslow Road, Richmond, Surrey.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

"The Wakes, Selborne."
(*From a photograph by R. Marshman Wattson, Esq.*)

Nature Notes:

The Selborne Society's Magazine.

No. 156. DECEMBER, 1902. Vol. XIII.

OBJECTS OF THE SOCIETY.

To preserve from unnecessary destruction such wild birds, animals and plants as are harmless, beautiful, or rare. To discourage the wearing and use for ornament of birds and their plumage, except when the birds are killed for food or reared for their plumage. To protect places and objects of antiquarian interest or natural beauty from ill-treatment or destruction. To promote the study of natural history.

SELBORNIANA.

The Wakes.—We are pleased to be able, through the courtesy of the Agricultural and Horticultural Association, to be able, just at a time when the subject is arousing renewed interest among Selbornians, to give as the frontispiece for this year's volume a view of Gilbert White's house as seen from the garden, from a photograph by our Secretary, Mr. R. Marshman Wattson, which has been pronounced by so high an authority as Dr. Bowdler Sharpe to be the best representation of the naturalist's home as it now is. We hope that before another year is ended we may be able to announce that this memorial of the worthy whom we love to honour has been secured as the property of the nation for all time.

The Richmond View.—The Bill for the preservation of the view from Richmond Hill has become law, that is to say, Parliament has sanctioned the bargain by which Lord Dysart hands over Petersham meadow and a broad strip of river

frontage on the Surrey side to the Richmond Corporation, in return for a permission to deal with part of the Ham Common lands as he pleases. Meanwhile, by the munificence of Sir Max Waechter, the Petersham Lodge estate is also secured from all fear of the builder. Anxiety as to the future attaches rather to the Buccleuch House and Cambridge House estates, and to Richmond Bridge, which is threatened by the utilitarian hand of a philistine Tramway Company.

Memorial to Richard Jefferies.—It will be remembered that we were able to announce in our issue of May last that, under the auspices of the North Wilts Field and Camera Club, a movement was in progress to affix a suitable tablet to the front of No. 22, Victoria Street, Swindon, a house at one time occupied by Richard Jefferies. The movement, we are glad to say, has now been crowned with success, for on Saturday, November 15, this further instalment—and we feel it to be but an instalment—of justice to the memory of Wiltshire's most gifted son took the form of a large meeting at the Town Hall, Swindon, followed by a procession to the house in Victoria Street, where the unveiling of the tablet by Lord Avebury, President of the Selborne Society, was carried out. At the meeting at the Town Hall, over which the Mayor presided, able and eloquent addresses were delivered by Lord Avebury and Mr. P. Anderson Graham (Editor of *Country Life*).

The tablet on the house bears the inscription: "Here lived Richard Jefferies, 1875—1877," and before the curtain was drawn aside by Lord Avebury, the great crowd then assembled enjoyed the privilege of hearing at considerable length the Club's distinguished President, Mr. N. Story Maskelyne, formerly Professor of Mineralogy in the University of Oxford. He was afterwards followed by Lord Edmund Fitzmaurice, M.P., Chairman of the Wilts County Council. Our space, unfortunately, does not allow of our giving extracts from the speeches, impressive as they were in their range and sympathy, and for particulars of them we must therefore refer Selbornians to the local papers, which have published very full reports of the proceedings. We must not omit to accord a full measure of thanks to Mr. T. C. Davison, the Club's Hon. Sec., for his unwearied efforts in so good a cause. The Council of the Selborne Society was directly represented at the ceremonies by its present Chairman, Mr. George Avenell.

THE HOLLY.

I SUPPOSE that holly is chiefly associated in the minds of most English people with the interior of our houses and churches at Christmas time, when the bright scarlet berries, contrasting with the deep green of the prickly leaf, form such an agreeable feature in the decorations.

But a lover of trees, who studies their beauties at all seasons of the year, will tell you to also observe the pretty white flowers that adorn this tree in the spring-time.

A botanist would say much about the tree that will here be omitted, and I shall speak rather of its practical uses and value as a forest tree.

As an ornamental shrub it is seen in gardens and parks, and it makes a very useful hedge, standing the use of clipping shears well. Its straight shoots are cut in hedges and other places, and are unrivalled for making carriage whips, the branches, when trimmed off, leaving knots to vary the monotony of the long handle. Such is the holly and its uses where the soil is rich. But where we come to light, sandy soil, in favourable situations, the holly grows to a height of fifty feet or more, and is a worthy companion of the oak in the forest. The timber it produces is very valuable, it is white, close-grained and hard, and is of special use to the cabinet-maker, particularly for inlaid work. It is sometimes used for wood-engraving in place of box: it also forms excellent handles for tools. Bird-lime is made from the bark.

Within a mile of my house in South Hampshire are several fine holly trees, some of great age. The girth of the largest is 4 feet 10 inches at the height of a man's chest. Owing to the trees around, it was impracticable to get a sketch of the whole tree, but I have got the stem with two large branches growing upwards, almost from the roots, to get at the light. The tree has a fine head, with leaves on the outside, but this could not be included in the sketch. Were I a photographer, the camera could not have helped me; rather the reverse, for I find that in sketching trees and other objects I am able to realise points about them that I should otherwise miss.

The tree is situated on a northern slope. I find its height, by measurement with the sextant, to be, to the summit of the crown, about 40 feet, and to the top of the bole, or timber-cylinder, 18 feet. The tree, however, if cut down, would be of little use as timber; there is a hole in the lower part of the trunk—the result of defective pruning, whether by nature or the hand of man—by which the rain enters, and I thrust my stick into a mass of black rot inside the tree. This rot must discolour the wood of the trunk, and in time will render the tree liable to be broken off by the wind when the oaks surrounding it have been cut down.

The habit of holly trees to spring from old trunks is very noticeable in this neighbourhood, and the holly stations, as I may call them, with light sandy soil on a slope where the sun does not get at the roots, are no doubt of great antiquity, the trees on them being remnants of the primeval forest.

The holly, though omitted from some books on Forestry, is nevertheless a true forest tree. It is storm-firm, and I do not remember ever having seen a holly that the wind had torn up by the roots.

Were the elements of Forestry, which would include instruction in pruning trees, taught in our rural schools, the tree we have been considering would be of commercial value, but as things are, it will probably continue to exist, as an interesting object, for many years.

It is a misfortune that in many places this beautiful tree is ruthlessly mutilated for decorative purposes. I remember twenty years ago having to find fault with my gardener, who had cut a branch off a tree that hid some ugly houses from my drawing-room window, to send to the church. My feelings were not of the most charitable kind at that moment, for I knew the holly to be a slow grower and that the mischief done could not be repaired in my lifetime.

One word as to the cultivation of the holly. Let its own leaves lie to rot on the ground and help to form a mould suitable for its growth. Evelyn says, "not dunging, which it abhors."

Tuckton, Christchurch, Hants. G. A. Daubeny.

FROM THE GERMAN.

"Whither oh! streamlet, art so swiftly going?"
"Down to the dale."
"I prithee stop thy little waves from flowing."
"I must not fail."
"What is the need for all this agitation?"
"My course I take."
"But wilt not bide a wee for meditation?"
"Yes in the lake."
"Is thy desire for earth already cloying?"
"I haste away."
"Well, thou wilt soon be peace and calm enjoying."
"Thou too, some day."

M. J. T.

REVIEWS AND EXCHANGES.

The Natural History of Selborne. By the late Rev. Gilbert White, A.M. Grant Richards. The World's Classics, vol. xxii. Price 1s. net.

THERE can certainly be little excuse for ignorance of White's "Selborne" to-day. It is obtainable in forms and prices to suit every taste and every pocket. Having, for the moment, lost count of the editions, we cannot say whether this be the 89th or the 90th, or whether it be the 13th or 14th now on sale; but it is welcome. Without any attempt at editing, biography or notes, beyond the author's own, we have here a clearly-printed text on opaque paper, neatly bound, of a perfectly pocketable size, and weighing about 7¼ oz.—a trifle more than the Temple Classics edition. A few of the poems are prefixed; but there are no illustrations, "Antiquities," or "Calendar." This being the thicker volume shall live in a pocket of our winter coat, as Messrs. Dent's edition already does in our summer one.

Round the Year: A Series of Short Nature Studies. By Prof. L. C. Miall, F.R.S. With illustrations, chiefly by A. R. Hammond, F.L.S. Macmillan and Co. Price 3s. 6d.

Professor Miall is so thoroughly equipped as an all-round naturalist and so pleasant a teacher that we could wish we had more popular books from his pen. His "Round the Year," originally published in 1896, has established its position, so that we are glad to welcome a cheaper re-issue, retaining, as it does, all the original illustrations, most of which are from the skilful pencil of Mr. A. R. Hammond. "I have written," says the author, "upon things which happened to interest me at the time, which seemed to admit of popular treatment, and which had not been fully discussed, so far as I knew, in elementary books. Another naturalist would have made a different choice; all the naturalists in the world could not exhaust the subject." We do not quite agree with the Professor's views as to the basis of the popularity of White's "Selborne," or as to the entire futility of what he calls the mechanical compilation of unassimilated facts; but we can imagine few more suggestive essays to put into the hands of thoughtful young people than those which he gives us here on snow-flakes, catkins, the cuckoo, buds, moorland plants, the reversed spiral, or the structure of a feather.

School of the Woods: Some Life Studies of Animal Instincts and Animal Training. By William J. Long. Illustrated by Charles Copeland. Ginn and Co. Price 7s. 6d.

It appears to us that underlying all the exquisite stories of animal life which we have had from the pen and pencil of Mr. Seton Thompson is the insistence on the fundamental tragedy of wild nature, the universal struggle for existence, the relentless law of kill and be killed. Mr. Long has gone to the same source for his inspiration as Mr. Seton Thompson—the unspoilt primeval life of the woods. His preface dates from Stamford, Connecticut, but his experiences must have taken him further afield. The conclusion upon which he has to insist is a narrower one than that of his prototype, though in no way contradictory to it, "namely, the large place which early education holds in the life of every creature." Though he afterwards explains that he is dealing mainly with birds and beasts, the author sums up his results by saying: "Personally, after many years of watching animals in their native haunts, I am convinced that instinct plays a much smaller part than we have supposed; that an animal's success or failure in the ceaseless struggle for life depends not upon instinct, but upon the kind of training which the animal receives from its mother. And the more I see of children, the more sure am I that heredity (only another name for accumulated and developed instincts) plays but a small part in the child's history and destiny; that, instead, training—early training—is the chief factor. . . . To the wild creature obedience is everything. It is the deep, unconscious tribute of ignorance to wisdom, of weakness to power. . . . And then come other secondary lessons—when to hide and when to run; how to swoop and how to strike; how to sift and remember the many sights and sounds and smells of the world, and to suit action always and instantaneously to knowledge—all of which, I repeat,

are not so much matters of instinct as of careful training and imitation." Mr. Long enforces this moral in about a dozen graphic tales of the backwoods. In these, as in previous works, he uses the names given to the animals by the Milicete Indians, of which a very necessary glossary is appended. This is all very well where in a long story the *dramatis personæ* are but few, as in Mr. Kipling's "Jungle Books"; but, as we said when writing of Du Chaillu's "African Forest," we doubt whether many readers find them anything but a hindrance in a series of short tales. Mr. Copeland's drawings are very charming, especially the whole-page ones, and add much to the attractiveness of an extremely pleasing work; but his use of marginal sketches throughout is perhaps too reminiscent of a previous worker.

Children's Garden. By the Hon. Mrs. Evelyn Cecil. With illustrations. Macmillan and Co. Price 6s.

Mrs. Cecil has by a previous work laid horticulture in general under an obligation to her; but her latest book is of a far more modest scope. Written for those fortunate children who, like herself, are brought up in the country and have gardens of their own, it is divided according to the seasons and is brimful of the most practical advice. The most effective varieties to select, where to plant them, and how to treat them, how to bud a rose and even how to make a mat to shield one's plants in winter—all is here set down. It is suggested that "Christmas holidays might be given up to books about gardens and flowers," and accordingly some elementary notions of botany are—perhaps unwisely—introduced towards the end of the book. Such an undertaking is full of pitfalls; it is, for instance, misleading to say that "The spike up the middle [of lords-and-ladies] is the real flower, and contains stamens and pistils arranged in groups," or that the flowers in a fig "develop into seeds." Such little *lapsus calami* can, however, easily be remedied when, as will certainly be the case, this pretty gift-book reaches its second edition.

Wood: a Manual of the Natural History and Industrial Applications of the Timbers of Commerce. By G. S. Boulger. With 82 illustrations. Edward Arnold. Price 7s. 6d. net.

Though mainly technological, this work touches in parts upon the realm of the naturalist. Its opening chapter, a long one, deals with the origin and microscopic structure of wood; another, with the fungoid enemies of the timber-merchant; and a third, with the eminently Selbornian question of the threatened exhaustion of our supplies of timber through reckless felling, forest-fires, and the neglect of planting. The larger half of the book is occupied by a dictionary of the woods of commerce, described under their popular names, which is more copious than those in any other book of the same general character.

Received: *The Butterflies and Moths of Europe*, Parts 13 and 14; *The Victorian Naturalist* for September and October; *The Naturalists' Journal*, which is in future to be known as *Nature Study*; *The Irish Naturalist*, a double British Association number; *The Animals' Friend*, *Our Animal Friends*, and *The Agricultural Economist* for November.

NATURAL HISTORY NOTES AND QUERIES.

The Fasting Powers of Animals and Birds.—I have had several opportunities of noticing how long creatures can go without food! Not so very long ago a kitten vanished and we were afraid that it had got into the woods; for, if it had been anywhere about, it would most certainly have returned at night as it had always been accustomed to do. Nothing was heard of it until twenty-one days afterwards, when a boy brought up a cat—and such a cat—which he had found apparently dead in a coal cellar belonging to a chapel next door. The cat had fallen in and had been unable to get out again. Knowing that we had lost a kitten, the boy had brought it to us; but it took some time to recognise it, for it

was in a fearful state, utterly unable to move and very thin. I do not think it could have lived for many more days, if it had not been found. Eventually it recovered; but its neck must have received some serious injury, for sometimes it could not move it, apparently suffering great agony. No doubt it had hurt itself in trying to jump up out of the cellar. In time it became so bad that we had to put an end to its life. The chapel was next door, so no doubt it had been there the whole three weeks. I also had a pigeon which was in a chimney for fifteen days, and was apparently none the worse.

48, *George Square, Edinburgh.* RICHARD C. LOWTHER.

Squirrel in North London.—It may be of interest to those living in North London, to learn that a wild squirrel is still living in the neighbourhood of Clapton Common. One morning last month it was seen running along the garden path, quite near the observer; then, darting up the trunk of a lime tree, it got caught in some wire netting, and could not extricate itself for some time. This gave a good opportunity of watching the pretty creature. When it had freed itself from the netting it sprang up the tree, darting from bough to bough with many pretty antics. Two days after, it was seen the other side of the road, in some park land belonging to an old disused house. A few years ago, before so many houses were built, squirrels had several times been noted about here, but it was thought that they had disappeared.

Water Shrews.—A pretty little animal occasionally to be noticed at the edge of a stream or pond is the water shrew. The ways of these creatures are most fascinating. I have seen them quietly emerge from the grass, run down the side of the bank into and along the bottom of the stream. While under the water their movements are very rapid: they scrape away on the bottom with their feet, thrusting their long snouts into the mud, and under stones or leaves in search of insects on which they feed. They then retire a little way up the bank for a moment or two to take breath, and hurry back to their work once more. I have never seen water shrews dive. They simply run in and out of the stream, as if air and water were both alike to them, and they were equally at home in either element. When under the water they look as if they were covered with minute silver pearls owing to the particles of air adhering to their furry bodies. Land and water shrews are not of the mouse tribe. They have the sharpest and most delicately beautiful teeth imaginable, and live entirely on insect food. They are therefore harmless and useful creatures. Kestrels, owls, and cats often kill them in mistake for mice, but seldom, if ever, carry the mistake so far as to make a meal off them. If they do, it makes them sick, and they do not repeat the dose a second time.

Market Weston, Thetford. EDMUND THOS. DAUBENY.
March, 1902.

The Strange Nesting Place of a Skylark.—Some years ago, while walking along a grassy path in a wood, I noticed a bird rise from the ground a few yards in front of me. I recognised it as a skylark. Taking no particular notice of this, I sat down on a seat which was quite close to where the bird had risen from. Then I noticed that a stone of some size showed itself above the turf of the path, while on one side of the stone there was a tuft of grass. Going down on my hands and knees I found that there was an opening in the grass, and that there appeared to be a hole underneath the stone. Out of this hole came the unmistakable sound of young birds. By putting in my fingers I could just reach them as they lay some nine inches in. My interest being aroused I sat down again on the seat, and very soon the mother returned, without being at all frightened by my presence on the seat. The path at this point ran through an open part of the wood, being edged by bracken and young birches. It would not be a very frequented path, for it was in the grounds of a Hydropathic at Grange-over-Sands, but the seat was rather a favourite one with the visitors. The nest was almost in the centre of the path, which would be some six feet wide.

48, *George Square, Edinburgh.* RICHARD C. LOWTHER.

Bird Sanctuary at Hampstead.—Referring to the paragraph under this heading in the May (1902) issue of NATURE NOTES, it must be gratifying to Mr. J. E. Whiting to know that the scheme which he originated is now approaching fruition, seeing that ground near the Viaduct Pond, for some time past staked out for the suggested refuge, has at length been fenced in. The next step should be to plant the space so enclosed with such trees, shrubs, grasses, &c., as would be likely to prove conducive to the birds' welfare. They, it should be remembered, are in one respect unlike ourselves, since with them the beauty of the surroundings would not be the first consideration, but rather would birds be attracted to a spot by suitable insect life there obtainable. It follows, then, from this, that by providing food for birds we ensure their presence, and so add charm and interest to any particular locality. In the little stream which trickles down our fenced-off valley we have one of the chief essentials, for in it birds would be able to bathe, and from it be able to drink. Brambles should be freely grown everywhere. They would in time hide the fence, if planted near to it, which would be no small advantage; but what is of more importance is that it is among these brambles that the blackcap and nightingale procure their chief supply of insect food; and in these thorny fastnesses do they build their nests and rear their young; so that no trouble in the way of planting should be deemed too great which would be likely to recall these treasured songsters. On each side of the stream might be tried moisture-loving things, such as sweet sedge, reed-mace, arrow-heads, water plantain, rushes, &c., all of which bear bird provender in the shape of caterpillars and insects, that are greedily devoured by pipits, sedge and reed warblers. Among the common reeds (*Phragmites communis*) the last-named always suspend their nests, in itself an effective argument for planting. Nor should evergreens be omitted—laurels, hollies, yews—which would serve as roosting places, and on no account should birches be overlooked, because these yield a large percentage of the food required by whitethroats, willow wrens, and other members of the Sylvian family on their first arrival in the spring. Now that the enclosure is a reality there will be saved, let us hope, the marsh marigolds growing by the rivulet, which, as spring comes round, are generally plucked before they have had time to show in yellow flower.

Hampstead, November 10, 1902. A.

Cuckoo.—On Thursday, August 28, my attention was drawn to a large bird sitting on the back of a garden seat which proved to be a fine young cuckoo. At intervals its foster parents (a pair of wagtails) fed it. It continued some half hour or so sitting in a humpy awkward way till, frightened by the gardener's mowing machine, it flew on to a croquet hoop on the lawn, slightly further away, and finally disappeared from view. It looked far too awkward in its appearance or flight to be able to undertake a long journey, though it was evidently obeying that old saying that "in August go he must." One of the foster parents (whether "Monsieur" or "Madame," I know not), spent the whole winter in our garden, and attended my daily bird breakfast-table to look out any dainties. In the spring it paired, and this is the result. I regret we did not investigate the nest whilst this young monster was incubating, the wagtails being mere dwarfs by their gigantic nestling.

Shiplake Vicarage. EMILY J. CLIMENSON.
October 31, 1902.

Variations of the Cuckoo's Call.—I never heard the "cuck-*coo-coo*" referred to by your correspondent, W. Shelley (NATURE NOTES, November, 1902, p. 216), but on June 2, 1897, at Little Baddow, Essex, I heard a cuckoo sing "cuck-cuck-coo" many times in succession. The second "cuck" was very slightly lower than the first, the interval being less than a semitone, that between the first "cuck" and final "coo" a minor third.

Referring to Mr. Beasley's note, it is not unusual to find young cuckoos still here (especially on the east coast), well into September, as they remain with us long after the old birds have departed, but the 20th of that month is, I think, a decidedly late date.

Blaxhall, Suffolk. G. T. ROPE.
November, 1902.

Robins.—It has been often stated that young robins kill all the old birds at the end of the summer. Can this be verified by any member of the Selborne Society?

November 5, 1902. F. S.

Addled Partridges' Eggs.—On a sporting estate this spring such a quantity of partridges' eggs were found to be addled, owing to the inclement season, that they were handed by the keepers to the gardeners and used as manure in the celery trenches.

Market Weston, Thetford. EDMUND THOS. DAUBENY.
August, 1902.

Snow Buntings.—During my stay at Lowestoft, at the beginning of this month, I came across a pair of these birds. My first view of them was at high tide, when they were on the pebbles close to the esplanade. They were in no fear of the passers-by, allowing me a closer view than the very robins in my garden, as they hopped about upon the wall and seats of the esplanade, and drank the water of its puddles. People did not notice them, or thought them only sparrows. They fed on the plants that grow above high water mark. When disturbed they have a habit of crouching among the pebbles, with which the colour of their plumage assimilates so well that one may pass within a few yards of them without noticing their presence. In their flight they are more conspicuous than any bird of their size with which I am acquainted.

Market Weston, Thetford. EDMUND THOS. DAUBENY.
October, 1902.

Black Woodpecker.—When cycling from Ixworth to Thetford, by way of Honington, Fakenham and Euston, on October 24, I was greatly startled by a loud tapping noise proceeding from a large oak tree in Euston Park. Being interested as to what was making the noise, and moving slowly on the machine, I stopped as gently as I could and proceeded up to the tree. After searching for some time I observed a large bird pecking on the dead limb of the tree. I watched the bird for some few minutes, and from what I could judge it was about the size of a green woodpecker. Its feathers were of a dirty black colour with a beautiful black crest. I should say its bill was about the size of a green woodpecker's. It seemed as though there were plenty of insects, as small pieces of wood were dropping and flying about. I thought I should be able to get a better view of the bird round the other side of the tree, so I started to move round as gently as I possibly could; but, alas, I put my foot on a piece of dry stick which cracked, and away flew the bird with its long sweeping curves (similar to the green woodpecker). The shrill noise it made while flying was a much harsher and louder noise than the green woodpeckers make. I am sorry I had not my camera with me, as I fully believe I might have been able to secure a photograph of the bird, which would have been very useful for the description, &c.

I had already heard that these birds had been seen in Euston Park, but I never had the pleasure of seeing one until the above date. I trust they have been able to rear a few young ones this summer, as Fakenham Woods and Euston Park is a splendid place for them. I trust that this will be useful information to readers and those who have been writing on the black woodpecker in NATURE NOTES. W. S. SPARROW.

Melford Bridge Road, Thetford.
November 14, 1902.

Why does a Devil's Coach-horse Turn up his Tail?—In answer to this question, which was asked by Mr. W. H. Bernard Saunders in the November number of NATURE NOTES, I believe the following is the generally accepted answer to the question. *Staphylinus oleus* by turning up its tail, tries no doubt to mimic a scorpion, and thus avoid being eaten by birds which would otherwise devour it, for many of our British birds know scorpions well, as they often come across them when wintering in a warmer climate than that of England. This beetle also uses its tail for folding up its wings under its elytra, which marvellous feat it would be unable to accomplish without the use of its tail. The smell, about which Mr. Bernard Saunders writes, no doubt also acts as a preventive of their being devoured by our avine friends.

In conclusion, I may mention that it is one of the bravest insects which I know, for it seems quite willing to attack anything which annoys it, be it a stick or any other instrument for torment.

Carlton House, Herne Hill, S.E. RALEIGH S. SMALLMAN.
November 14, 1902.

Earwigs.—A labouring man has just shown me a large gathering in his arm which he and the medical man who saw it consider to have been caused by the sting of an earwig. Something had pricked or stung his arm, and an earwig was found in his sleeve. What will earwigs be accused of next? One of the popular myths that die so hard is that these insects have a way of creeping into the human ear, burrowing into the brain, and causing goodness knows what. Now, on the authority of a doctor, name happily unknown, the earwig has grown a sting, a weapon that no other beetle has. The forceps at the end of the body are too feeble to cause injury to man, and are admirably adapted to the special purpose of folding up the earwig's large and beautiful wings—a process I have often watched with much delight. If people were to see the business way in which an earwig clears a plant of scale-insects they would wake up to the fact that this despised beetle has its use in the economy of nature. I know no better way of clearing a delicate fern of scale than to put it under a bell glass with half a dozen earwigs.

Market Weston, Thetford. EDMUND THOS. DAUBENEY.
October, 1902.

Flora of Hampstead.—In NATURE NOTES of February, 1902, there were among the "Reviews" a few lines in notice of a pamphlet by Mr. James E. Whiting upon the above subject. Hope was expressed that at some future time we might hear something of the lost flora of this popular, perhaps too popular, district. A lady who wrote to Mr. Whiting from Yorkshire has in some measure supplied the want. Her father had lived at Hampstead away back in the twenties and thirties of the last century, and though, as the writer pathetically remarked, she was now too advanced in years to hear the mellow flutings of the blackbird and the screechings of the swift as he raced overhead, or to see the wilding bloom in its natural habitat, yet had the scenes and experiences of early days, when she traversed heath and lane, wood and field, never dulled in her mind's eye. One of her greatest pleasures in the evening of life was to live over again the botanical rambles of her unmarried youth in the Hampstead district. Proceeding, Mr. Whiting's correspondent remarked that buckbean, cotton grass and sundew flourished in her time in abundance and beauty; in one field at Child's Hill *Saxifraga granulata* showed in plenty; while near the Kite (now Leg of Mutton) Pond on the West Heath *Orobanche major* was to be found. *Erica vagans* was present, though rare. *Acorus Calamus* grew on the banks of one of the ponds away towards Highgate, and near the same spot *Butomus umbellatus* flowered freely. Whereas *Chrysosplenium oppositifolium* and *Digitalis purpurea* revealed themselves to the searcher in adjacent woods more or less sparsely, *Pedicularis sylvatica* grew all over the Heath.

Hampstead, November 7, 1902. G. A.

[There is one mistake here. *Erica vagans* never grew at Hampstead, though *E. cinerea* and *E. Tetralix* still occur there.—ED. *N.N.*]

White Varieties of Flowers.—It is very difficult to account for the occurrence of these varieties to which Mr. Millard alludes in our November number. In most woods which are carpeted with bluebells (*Scilla festalis*), there is a sprinkling of albino plants, in which not only the perianth but also the bracts are white, while the foliage and peduncle are a lighter green than in the others. So, too, in the case of the Betony (*Stachys betonica*), pink and white flowered forms grow side by side with the more abundant dark red ones, and the absence or lessening of pigment in the corolla is accompanied by its absence in the "green" parts. White varieties of Self-heal (*Prunella*), of *Orchis mascula*, and of many other species, suggested to me years ago that the absence of iron or potash in a pure chalk subsoil might be an explanation; but it can only be a partial one. The variety of Herb Robert (*Geranium Robertianum*), to which Mr. Millard refers, is particularly interesting. It dries pink, containing, no doubt, some much diluted pigment; but it retains its white flowers indefinitely

under cultivation, and is true to sced. It seems especially partial to sandy soils, such as those of the Greensands in Surrey, though I have found it on Gault clay. It will have been noticed by many that though the pigment often fails in blue or red flowers, we seldom have white varieties of those normally yellow.

G. S. BOULGER.

"Meteoric" Stones.—A party of the members of the Selborne Society had a very enjoyable afternoon in visiting the so-called meteoric stones at the Natural History Museum, Kensington, on Saturday, November 15, under the pleasurable guidance of Mrs. Percy Myles, where we heard a very lucid and scientific lecture from Mr. L. Fletcher, F.R.S., on the subject of these stones, giving their mineral composition, and also a complete history of many of them as far as is ascertainable. Mr. Fletcher took every trouble to explain the subject, and succeeded in interesting his audience.

Our party was much interested in examining the fragment of one of these iron-stones, which is believed to have fallen from regions beyond the sky into a field in the parish of Crumlin, in the county of Antrim, Ireland, on September 13 last. Although Mr. Fletcher did not go into the details of the discovery of this stone, some interesting particulars were given on a card attached to the case in which the stone is placed. From this we learnt that an explosion was heard by a man named Adams, and also a hissing noise, and that on his looking round a cloud of dust was seen rising from a spot close by, in a wheat field, and also a sulphurous smell was observed. On going to the place, this fragment of a stone was found to be then hot, and it was in a hollow one foot and a-half deep. It is worthy of note that no one actually saw the fall of the stone.

As I am a sceptic as to the belief that these stones come from the sky, perhaps you will allow me to state what I believe actually took place in reference to this Irish stone. I cannot think there can be any doubt that these stones were originally of volcanic production. This idea is borne out by Sir Robert Ball. But I believe that they were ejected from volcanoes many ages ago in the world's history, and were buried at the time in the earth's crust. My belief with reference to the Crumlin stone is that the explosion that was heard on September 13 was a clap of thunder. Thunder, when the electric fluid is close by, always sounds like an explosion or a series of explosions. Immediately previous to the thunder I believe that electric fluid in the shape of a flash of lightning was attracted by the quantity of iron in the stone as it lay buried in the ground, and struck the stone and the earth above it, causing a cloud of dust to arise. Of course the lightning would break the stone and cause it to be hot; and if the stone contained any sulphur, it would likely account for the sulphurous smell. The hot stone against damp ground would cause the hissing noise. It is said there was a stone underneath the stone that was found, but I think it will probably be found that the underneath stone is a part of the same stone, of which the fragment in the Museum is a portion. In a newspaper account that I saw, it was stated that the stone in its fall had not disturbed the wheat in the slightest degree. I hardly think this would have been the case if the stone had actually fallen when the wheat was growing there.

I have been told that a combination of sulphur and iron in minerals, when exposed to damp or to air, frequently produces spontaneous combustion, and causes such extreme heat as to make the mineral burst and scatter its numerous fragments for a considerable distance in all directions. I put this forward as a possible explanation of some of the supposed falls of meteorites. It must be noted at what a little distance below the surface of the ground these volcanic iron-stones are found, showing how slight was their velocity on coming to the ground.

I do not believe there is any properly substantiated proof of a single case to be found of any stone having ever been seen to fall from the sky.

Hampstead, November 17, 1902. PETER HASTIE.

[We think our correspondent must be mistaken in attributing to Sir Robert Ball a belief in the volcanic origin of meteorites. There are many objections to such a theory. Iron alloyed with nickel, graphite and cliftonite, are practically unknown among volcanic rocks, though frequent in meteorites; and many meteorites have been seen to fall in districts far removed from volcanoes. If Mr. Hastie will read Mr. Fletcher's "Introduction to the Study of Meteorites," published at the Museum for threepence, he will, we think, alter his opinion. —ED. *N.N.*]

SELBORNE SOCIETY NOTICES.

Council Meeting.—The usual monthly meeting of the Council will be held at 20, Hanover Square, W., on Wednesday, December 10, at 5.30 p.m.

New Members.—Reuben G. Kestin, Esq., South Norwood Park; Miss Lydia M. Webb, Nottingham Place, W.; Miss G. M. Boys, Brighton; Mrs. Fanny Butcher, Hampstead.

Donations and Subscriptions.—The Council beg to acknowledge the following subscription over 5s.: the Right Hon. Sir Mountstuart E. Grant Duff, G.C.S.I., &c., 10s.

NEWS FROM THE BRANCHES.

Bath.—Col. H. M. Skrine, J.P., has kindly consented to become President of the Bath Branch in succession to his father, Mr. Henry Duncan Skrine, who founded this Branch in 1887 and was its esteemed President till his death.

Rother Valley.—On November 14, Professor Boulger gave a lecture on "Gilbert White and his modern followers," illustrated by lantern slides, before the Petersfield Debating Society, on behalf of the branch.

SELBORNE SATURDAY AFTERNOON.

Saturday, December 13.—**Natural History Museum, Cromwell Road, S.W. (Geological Department).** Meet Mrs. Percy Myles in the Central Hall, 2 to 2.15. Dr. A. Smith Woodward, Keeper of the Department, has kindly undertaken to talk to the Selbornians about "South American Fossil Mammals."

ANSWERS TO CORRESPONDENTS.

H. J. Driscoll. The small gnats, which we hope to name next month, are certainly bred in the water.

NOTICES TO CORRESPONDENTS.

1. All communications for NATURE NOTES must be authenticated with name and address, not necessarily for publication.

2. The return of an unacccpted contribution can only be guaranteed when it is accompanied by a stamped and addressed envelope. We cannot undertake to name specimens privately, to return them, or to reply to questions by letter.

3. All communications for any number must be in the Editor's hands by the 10th of the preceding month.

4. Communications for NATURE NOTES, books for review, specimens for naming, &c., should be addressed to the Editor, PROFESSOR BOULGER, F.L.S., F.G.S., 11, Onslow Road, Richmond, Surrey.

5. For the supply of the Magazine to others than members address the publishers, Messrs. JOHN BALE, SONS AND DANIELSSON, Ltd., 83-89, Great Titchfield Street, London, W.

6. Letters connected with the business of the Society, subscriptions, &c., should be addressed to the Secretary, Mr. R. MARSHMAN WATTSON, 20, Hanover Square, W.

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